

DPS7000 XTAx5 - 140Rd-4

Service Guide

Hardware: DPS7000/XTA

REFERENCE
77 A7 16EL 00

DPS7000/XTA
NOVASCALÉ 7000



DPS7000/XTA

NOVASCALE 7000

DPS7000/XTAx5-140Rd-4

Service Guide

Hardware: DPS7000/XTA

January 2006

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Safety Notes

This section provides notes on using the server safely.



SAFETY INDICATIONS

To ensure proper and safe maintenance of the server, handle the server according to the direction of the Maintenance Guide.




The Maintenance Guide describes possible dangers in use of the server, the dangers you encounter if you do not observe the instructions, and the ways to avoid the dangers.

Warning labels are attached to components with possible danger or their vicinity in the server when operating the server.

In the Maintenance Guide and the warning labels, "WARNING" and "CAUTION" are used as the terms indicating hazardous levels. The terms are defined to have the following meanings.






 WARNING	Indicates the presence of a hazard that may result in death or serious personal injury.
 CAUTION	Indicates the presence of a hazard that may cause minor personal injury, including burns, or property damage.

Precautions and notices against hazards are presented with one of the following three symbols. The individual symbols are defined as follows:



	This symbol indicates the presence of a hazard. An image in the symbol illustrates the hazard type. (Attention)
	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action. (Prohibited Action)
	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard. (Mandatory Action)

SYMBOLS USED IN THIS GUIDE AND WARNING LABELS



Attentions

	Indicates that improper use may cause an electric shock.
	Indicates that improper use may cause personal injury.
	Indicates that improper use may cause fingers to be caught.
	Indicates that improper use may cause fumes or fire.
	Indicates a general notice or warning that cannot be specifically identified.

Prohibited Actions

	Indicates a general prohibited action that cannot be specifically identified.
	Do not disassemble, repair, or modify the server. Otherwise, an electric shock or fire may be caused.








Mandatory Action

	Unplug the power cord of the server. Otherwise, an electric shock or fire may be caused.
	Indicates a mandatory action that cannot be specifically identified. Make sure to follow the instruction.

Safety Notes

This section provides notes on using the server safely. Read this section carefully to ensure proper and safe use of the server. For symbols, see "SAFETY INDICATIONS" provided earlier.

General

 WARNING	
	<p>Do not use the server for services where critical high availability may directly affect human lives.</p> <p>The server is not intended to be used with or control facilities or devices concerning human lives, including medical devices, nuclear facilities and devices, aeronautics and space devices, transportation facilities and devices; and facilities and devices requiring high reliability. The manufacturer assumes no liability for any accident resulting in personal injury, death, or property damage if the server has been used in the above conditions.</p>
	<p>Do not use the server in any unapproved place.</p> <p>Install the server on a standard EIA 19-inch rack cabinet.</p> <p>Do not install the rack containing the server in a place inappropriate to the rack installation environment.</p> <p>Failure to follow these instructions may cause some bad influences to be imposed on the server and other systems installed on the rack and also a fire or personal injury due to falling of the rack may occur.</p> <p>For the detailed explanation on the place where the server should be installed and the earthquake-resistant construction for the rack, refer to the manual attached to the rack.</p>
	<p>Always install the server on a rack conforming to the relevant standard.</p> <p>Install the server on a rack conforming to the EIA standard for the server to be used. Do not use the server with installed on any other rack than standard EIA 19-inch rack or without the installation on a proper rack. Failure to follow these instructions may cause the server to operate incorrectly and/or personal injury or damages of surrounding devices to occur.</p>
	<p>Do not use the server if any smoke, odor, or noise is present.</p> <p>If smoke, odor, or noise is present, immediately turn off the POWER switch and disconnect the power plug from the outlet. Using the server in such conditions may cause a fire.</p>
	<p>Keep needles or metal objects away from the server.</p> <p>Do not insert needles or metal objects into ventilation holes in the server or openings in the floppy disk or CD-ROM drive. Doing so may cause an electric shock.</p>
	<p>Keep water or foreign matter away from the server.</p> <p>Do not let any form of liquid (water etc.) or foreign matter (e.g., pins or paper clips) enter the server. Failure to follow this warning may cause an electric shock, a fire, or a failure of the server. When such things accidentally enter the server, immediately turn off the power and disconnect the power plug from the outlet.</p>

Power Supply and Power Cord Use

WARNING



Do not hold the power plug with a wet hand.

Do not disconnect/connect the power plug while your hands are wet. Failure to follow this warning may cause an electric shock.

CAUTION



Plug in to a proper power source.



Use a proper wall outlet. Use of an improper power source may cause a fire or a power leak.

Do not install the server where you need an extension cord. Use of a cord that does not meet the power specifications of the server may heat up the cord and cause a fire.



Do not connect the power cord to an outlet that has an illegal number of connections.

The electric current exceeding the rated flow overheats the outlet, which may cause a fire.



Insert the power plug into the outlet as far as it goes.

Heat generation resulting from a halfway inserted power plug (imperfect contact) may cause a fire. Heat will also be generated if condensation is formed on dusty blades of the halfway inserted plug, increasing the possibility of fire.



Use the authorized power cord only.

Use only the power cord that comes with the server. Use of an unauthorized power cord may cause a fire when the electric current exceeds the rated flow.

Also, observe the following to prevent an electric shock or fire caused by a damaged cord.

- Do not stretch the cord harness.
- Do not pinch the power cord.
- Do not bend the power cord.
- Keep chemicals away from the power cord.
- Do not twist the power cord.
- Do not place any object on the power cord.
- Do not secure the power cord with staples or equivalents.
- Do not alter, modify, or repair the power cord.
- Do not use any damaged power cord. (Replace a damaged power cord with a new one of the same specifications.)

Notes on Installing and Accessing the Rack Cabinet

CAUTION



Do not carry or install the rack cabinet only by a single person.

More than one person is required to carry or install the rack. Failure to follow this instruction may cause the rack to fall to result in personal injury and/or breakages of surrounding devices. In particular, a high rack (such as 44U rack) is unstable if it is not fixed by stabilizers. More than one person must always carry or install the rack while they support it.



Do not install the rack cabinet so that the load may be concentrated on a specific point.

Install stabilizers on the rack so that the total load of the rack and devices mounted on the rack is not concentrated on a single point or join more than one rack with each other to distribute the load. Failure to follow this instruction may cause the rack to fall to result in personal injury.



Do not install components on the rack cabinet only by a single person.

More than one person is required to install parts including the doors and trays for the rack. Failure to follow this instruction may cause some parts to fall to be broken and/or to result in personal injury.



Do not leave more than one device being pulled out from the rack.

Pulling out more than one device from the rack may cause the rack to be fallen. Only pull out a single device from the rack at a time.



Do not provide the wiring for the server to exceed the rating of the power supply.

To prevent burns, fires, and device damages, the power supplied to the server shall not exceed the rating load of the power branch circuit. The server requires at least two Power Cords or up to four Power Cords (depends on your configuration). Connect each power cord to each appropriate Wall Outlet provided with 20A branch circuit. Contact your electric constructor or the local power company for the requirements on the wiring and installation of electric facilities.

Installation, Relocation, Storage, and Connection

⚠ CAUTION



Never attempt to lift the server with three or less persons.

The server weighs 75 kg at maximum (depending on its hardware configuration). Carrying the server with three or less persons may strain their back. Hold the server firmly by its bottom with at least four persons to carry it. Do not hold the front bezel to lift the server. The front bezel may be disengaged from the server, causing personal injury.



Do not install the server on a rack with leaving covers removed.



Do not install the server on a rack with the cover being removed. Failure to follow this instruction may reduce the cooling effect in the server to result in some malfunction and/or dusts to enter the server to result in a fire or electric shock.



Do not pinch your finger with rails or other components.

Note sufficiently that your fingers may not be caught between a rail and another mechanical part or cut by a rail at installation or removal of the server from the rack.



Do not use the server in the place where corrosive gases exist.

Make sure not to locate or use the server in the place where corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc) exist. Also, do not set it in the environment where the air (or dust) includes components accelerating corrosion (ex. sulfur, sodium chloride) or conductive metals. There is a risk of a fire due to corrosion and shorts of an internal printed board.



Do not install the server in any place other than specified.

Do not install the server in the following places or any place other than specified in this manual. Failure to follow this instruction may cause a fire.

- a dusty place
- a humid place such as near a boiler
- a place exposed to direct sunlight
- an unstable place



Do not connect any interface cable with the power cord of the server plugged to a power source.



Make sure to power off the server and unplug the power cord from a power outlet before installing/removing any optional internal device or connecting/disconnecting any interface cable to/from the server. If the server is off-powered but its power cord is plugged to a power source, touching an internal device, cable, or connector may cause an electric shock or a fire resulted from a short circuit.



Do not use any unauthorized interface cable.

Use only interface cables provided by the manufacturer and locate a proper device and connector before connecting a cable. Using an authorized cable or connecting a cable to an improper destination may cause a short circuit, resulting in a fire.

Also, observe the following notes on using and connecting an interface cable.

- Do not use any damaged cable connector.
- Do not place any object on the cable.
- Do not step on the cable.
- Always lock the cable with screw.
- Do not use the server with loose cable connections.

Cleaning and Working with Internal Devices

WARNING



Do not disassemble, repair, or alter the server.

Never attempt to disassemble, repair, or alter the server on any occasion other than described in this manual. Failure to follow this instruction may cause an electric shock or fire as well as malfunctions of the server.

Disconnect all the power plugs before accessing inside the server, or connecting the peripherals.

Make sure to power off the server and disconnect the all power plugs from a power outlet before cleaning or installing/removing internal optional devices. Touching any internal device of the server with its power cords connected to a power source may cause an electric shock even of the server is off-powered.

Disconnect all the power plugs from the outlet occasionally and clean the plug with a dry cloth. Heat will be generated if condensation is formed on a dusty plug, which may cause a fire.



Do not look into the CD-ROM drive.

A laser beam used in the CD-ROM drive is harmful to the eyes. Do not look into or insert a mirror into the drive while the drive is powered. If a laser beam is caught in your eyes, you may lose your eyesight (the laser beam is invisible).



Do not remove the lithium and NiMH batteries.

The server contains the lithium and NiMH batteries. Do not remove the battery. Placing the battery close to a fire or in the water may cause an explosion.

When the server does not operate appropriately due to the dead lithium and NiMH batteries, replace only with the same or equivalent type described later in this manual. Danger of an electric shock due to short-circuit if the battery is incorrectly replaced.

CAUTION



Hot surface

Immediately after the server is powered off, its internal components such as hard disk drives are very hot. Leave the server until its internal components fully cool down before installing/removing any component.



Make sure to complete installation.

Always install a power cable, interface cable, and/or option board firmly. An incompletely installed component may cause a contact failure, resulting in smoking or fire.

Some components in the server must be replaced due to expiration of service life (e.g., fan module and power supply unit). To use the server successfully, regularly replace these components.



Protect the unused connectors with the protective cap.

The unused power supply cable connectors are covered with the protective cap to prevent short circuits and electrical hazards. When removing the power supply cable connector from the internal devices, attach the protective cap to the connector. Failure to follow this warning may cause a fire or an electric shock.

During Operation

CAUTION



Do not pull out or remove the server from the rack.

Pulling or removing the server out from the rack other than hot-swapping may cause malfunction of the server. The server may fall and cause a personal injury.



Stay away from the fan.

Keep your hand or hair away from the cooling fan on the rear of the server.

Failure to follow this warning may get your hand or hair caught in the fan, resulting in injury.



Avoid contact with the server during thunderstorms.

Disconnect all the power plugs from the outlet when a thunderstorm is approaching. If it starts thundering before you disconnect the all power plugs, do not touch any part of the server including the cables. Failure to follow this warning may cause a fire or an electric shock.



Keep animals away from the server.



Failure to follow this warning may cause a fire or an electric shock.



Do not place any object on top of the server.

An object placed on top of the server may fall down, resulting in damage to your property around the server.



Do not leave the CD tray open.

If dust gets on the lens of CD-ROM drive, the drive may have problems reading your disks. Also, the CD tray may be broken by contacting any objects.



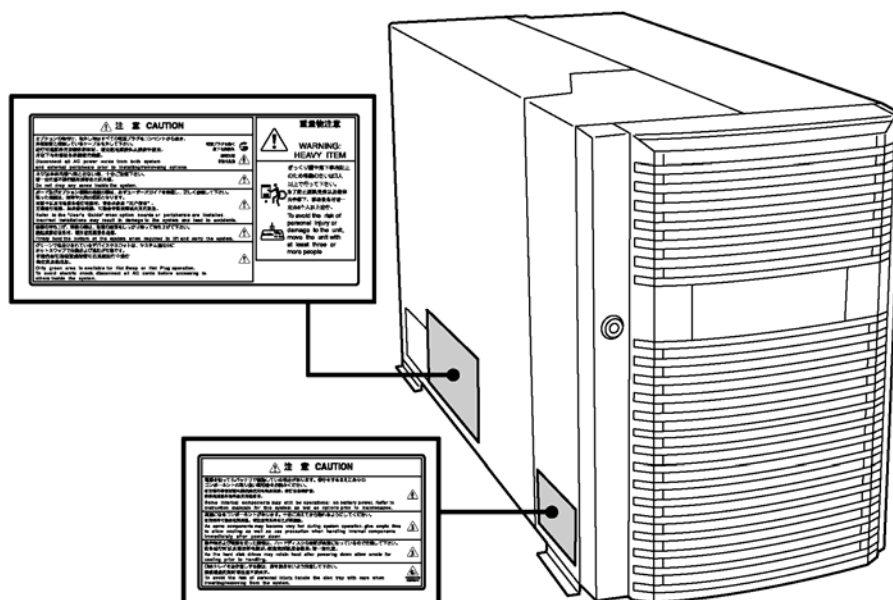
Do not use a cellular phone or pager around the server.

Turn off the cellular phone or pager. Radio interference may cause malfunctions of the server.

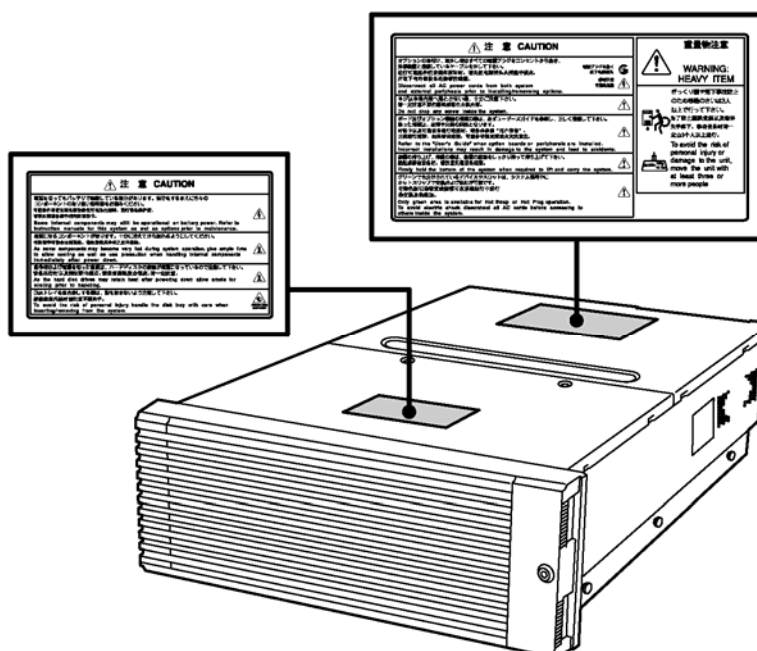
Warning Labels

The warning label is attached to components with possible danger or their vicinity in the server to inform the user that a hazardous situation may arise when operating the server. (Do not intentionally remove or damage any of the labels.)

If you find any labels totally/partially removed or illegible due to damage, replace them with new ones.



Tower



Rack

Contents

1. Overview.....	1
1.1 Model and Product Name.....	1
1.2 Overview of Gibson-C/140Rd-4, Gibson-P/140Rd-4, Gibson-Px/140Rd-4.....	2
1.3 Overview of Gibson-C/140He, Gibson-P/140He, Gibson-Px/140He.....	2
1.4 Specifications	3
1.4.1 Gibson-Cranford/140Rd-4	3
1.4.2 Gibson-Cranford/140He.....	5
1.4.3 Gibson-Potomac/140Rd-4.....	7
1.4.4 Gibson-Potomac/140He	9
1.4.5 Gibson-Paxville/140Rd-4.....	11
1.4.6 Gibson-Paxville/140He	13
1.5 Names and Functions of Components.....	15
1.6 Boards.....	26
1.6.1 Processor Board (Gibson-C: G7HRJ, Gibson-P: G7HUN, Gibson-Px: G7JBM)....	26
1.6.2 I/O Board (G7HRH).....	27
1.6.3 Main Board (G7HML)	29
1.6.4 Memory Board (G7HMG)	30
1.6.5 Connect Board (G7HMK).....	30
1.6.6 SCSI BP [5HDD] (G7HRK)	31
1.6.7 SCSI BP [3HDD] (G7HRL).....	31
1.6.8 Front Panel 1 (G7HMN)	32
1.6.9 Front Panel 2 (G7HMP)	33
1.6.10 CD/FD Board (G7HMJ).....	34
1.6.11 Management LAN Board (G7HTR)	34
1.6.12 Power BP (G7HMM)	35
1.6.13 Additional SCSI BP (G7HUP).....	36
1.7 Lamp Indications.....	37
1.7.1 POWER/SLEEP Lamp.....	37
1.7.2 STATUS Lamp	38
1.7.3 DISK ACCESS Lamp	39
1.7.4 LAN1/LAN2 ACCESS Lamp	39
1.7.5 UID Lamp	40
1.7.6 PCI Slot Lamps	41
1.8 Cable Connection	42
1.8.1 140Rd-4 (Disk-Model).....	42
1.8.2 140Rd-4 (Device Model)	43
1.8.3 140He (With Additional HDD Cage and 5-inch Device Bay)	44
1.9 Criteria for Installation	48
1.9.1 Gibson-C/140Rd-4,Gibson-P/140Rd-4,Gibson-Px	48
1.9.2 Gibson-C/140He,Gibson-P/140He,Gibson/140He	48
2. Installation, Removal or Pull-out of Server from Rack.....	49
3. Installation or Removal of Option from Server	50
4. Maintenance and Replacement	51
4.1 Basic Idea of Maintenance	51

4.2	Routine Maintenance.....	51
4.3	Indication of Defected Devices with Lamps	52
4.3.1	Status Lamp.....	54
4.3.2	Attention Lamp	55
4.3.3	Processor Board Error Lamp.....	56
4.3.4	Memory Board Error Lamp	58
4.3.5	I/O Board Error Lamp.....	59
4.3.6	Power Unit Error Lamp.....	61
4.3.7	Fan Error Lamp	62
4.3.8	Temperature Error Lamp.....	63
4.3.9	Clearing Lamp Indication	63
4.4	Off-line Maintenance Utility	64
4.4.1	Starting Off-line Maintenance Utility	64
4.5	Fault Repair and Troubleshooting	66
4.6	Dump Acquisition	67
4.7	POST Execution	67
4.8	TeDoLi Execution	67
4.9	Device Replacement (1).....	68
4.9.1	Preparation before Replacement	68
4.9.2	Replacement of Hard Disk, Power Unit, 3.5-inch Device, or 5-inch Device.....	69
4.9.3	Replacement of Memory Board or DIMM	69
4.9.4	Replacement of Processor Board, Processor, Heat Sink or VRM.....	73
4.9.5	Replacement of CD-ROM Drive or CD/FD Board on 140Rd-4 Chassis.....	79
4.9.6	Replacement of CD-ROM Drive, CD/FD Board or FD Drive on 140He Chassis...	81
4.9.7	Replacement of Front Panel	83
4.10	Device Replacement (2)	84
4.10.1	Removal or Installation of Rear Access Cover	84
4.10.2	Removal or Installation of Front Access Cover	85
4.10.3	Fan Replacement.....	86
4.10.4	Replacement of Power Cage or Power BP.....	89
4.10.5	Replacement of Management LAN Board or I/O Board	93
4.10.6	Replacement of Additional HDD Cage or SCSI-BP (8 HDDs) on 140He Chassis	101
4.10.7	Replacement of SCSI-BP (5HDD/3HDD) on 140Rd-4 Chassis	105
4.10.8	Replacement of SCSI-BP(5HDD) on 140HE Chassis	108
4.10.9	Replacement of Main Board or Connect Board on 140Rd-4 Chassis	110
4.10.10	Replacement of Main Board or Connect Board on 140He Chassis	112
4.10.11	Replacement of Battery of DIMM for On-board RAID.....	114
4.10.12	Replacement of PCI Board.....	118
4.11	Jumper Settings	119
5.	System BIOS	122
5.1	BIOS SETUP.....	122
5.2	Duplication of System BIOS	122
6.	RAS Function	123
6.1	Logging	123
6.2	Memory Degrading Operation	123
6.3	Temperature Monitoring.....	123
6.4	Watchdog Timer (WDT).....	123
7.	Remote Management Function	124

8. Troubleshooting	125
8.1 Error LED Indications	125
8.2 Locations of Devices Appearing in Error Messages	125
8.2.1 Fan.....	126
8.2.2 Memory Board and DIMM	127
8.2.3 Processor and VRM	128
8.3 POST Error Messages	129
8.4 Beep Codes.....	136
8.5 Operation of Battery and DIMM for Onboard RAID	138
8.5.1 Error Indication by POST	138
8.5.2 Error Messages by Windows Event Log	138
8.5.3 Battery Status Check by MegaRAID Configuration Utility.....	139
8.6 Error Messages in Remote Management.....	140
9. Other Notes (Restrictions).....	148
10. Saving/Restoring Product Information when Replacing the I/O Board.....	149
10.1 Overview	149
10.2 Restoration Procedure 1 (Backup and Restoration)	149
10.2.1 Overview	149
10.2.2 Requirements.....	149
10.2.3 Details	150
10.3 Restoration Procedure 2 (With No Backup Copy)	154
10.3.1 Overview	154
10.3.2 Requirement	154
10.3.3 Details	154
11. Maintenance Parts	157
11.1 Specification Number of Maintenance Parts	157
11.2 Maintenance Parts List	159
12. Appendix	163
12.1 Available PCI Boards	163
12.2 Available Options	164
12.3 Block Diagram	165

1. Overview

Development Code

Gibson- C / 140Rd-4
(1) (2) (3)

(1): Development code name

(2): CPU code name (C = Cranford, P = Potomac, Px=Paxville)

(3): Chassis model (140Rd-4=Rack Type, 140He = Tower Type)

1.1 Model and Product Name



Development code	Product name	Description
Gibson-C/140Rd-4	Express5800/140Rd-4 (XMP/3.16G (1))	Cranford (3.16GHz/667/1M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-C/140Rd-4	Express5800/140Rd-4 (XMP/3.66G (1))	Cranford (3.66GHz/667/1M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-C/140He	Express5800/140He (XMP/3.16G (1))	Cranford (3.16GHz/667/1M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-C/140He	Express5800/140He (XMP/3.66G (1))	Cranford (3.66GHz/667/1M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-P/140Rd-4	Express5800/140Rd-4 (XMP/3.33G (8))	Potomac (2.83GHz/667/8M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-P/140Rd-4	Express5800/140Rd-4 (XMP/3.33G (8))	Potomac (3.0GHz/667/8M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-P/140Rd-4	Express5800/140Rd-4 (XMP/3.33G (8))	Potomac (3.33GHz/667/8M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-P/140He	Express5800/140He (XMP/3.33G (8))	Potomac (2.83GHz/667/8M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-P/140He	Express5800/140He (XMP/3.33G (8))	Potomac (3.0GHz/667/8M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-P/140He	Express5800/140He (XMP/3.33G (8))	Potomac (3.33GHz/667/8M)×1 MEM: 1G (512MB MEMx2) Diskless
Gibson-Px/140Rd-4	Express5800/140Rd-4 (XMPD/3G(4))	Paxville (2.66GHz/667/2x2M) x 1 MEM: 1G (512MB MEMx2) Diskless
Gibson-Px/140Rd-4	Express5800/140Rd-4 (XMPD/3G(4))	Paxville (3GHz/667/2x2M) x 1 MEM: 1G (512MB MEMx2) Diskless
Gibson-Px/140He	Express5800/140He (XMPD/3G(4))	Paxville (2.66GHz/667/2x2M) x 1 MEM: 1G (512MB MEMx2) Diskless
Gibson-Px/140He	Express5800/140He (XMPD/3G(4))	Paxville (3GHz/667/2x2M) x 1 MEM: 1G (512MB MEMx2) Diskless

Official name of Canford/Potomac : 64-bit Intel® Xeon® Processor MP

Official name of Paxville : Dualcore Intel ® Xeon® Processor 7040



1.2 Overview of Gibson-C/140Rd-4, Gibson-P/140Rd-4, Gibson-Px/140Rd-4

- 4-sockets Server
- Rack-mount model
- 4U

 CAUTION	
	<p>At least three persons are required to install or remove the server to/from the rack to prevent a personal injury due to falling server.</p> <p>The server weighs approximately 36 kg (47 kg at the maximum).</p>

1.3 Overview of Gibson-C/140He, Gibson-P/140He, Gibson-Px/140He

- 4-sockets Server
- Tower model
- 7U
- Can be changed to rack-mount type by using the rack conversion kit.

 CAUTION	
	<p>At least four persons are required to install or remove the server to/from the rack to prevent a personal injury due to falling server.</p> <p>The server weighs approximately 47 kg (75 kg at the maximum).</p>

1.4 Specifications

1.4.1 Gibson-Cranford/140Rd-4

Gibson-C/140Rd-4		Specifications		Description
CPU	Processor	Cranford x 1 to 4		Adopted CPU: Cranford (3.16GHz/667/1M) Cranford (3.66GHz/667/1M)
	CLK	3.16GHz	3.66GHz	
	FSB	667MHz		
	Package	MPGA		
	L2 Cache	1MB		
Chipset		Intel Twin Castle		
Memory	Standard	1GB (512 MB DIMM x 2)		4Way-Interleave
	Maximum	32GB (16 DIMMs in total)		512MB DIMM x2
	Adding unit	DDR-2 400 SDRAM DIMM (Registered) x 2		1GB DIMM x2 2GB DIMM x2
	Adding times	8 times ^{*1}		Additional memory backboard
	Check	ECC		^{*1} : When factory-installed DIMMs are replaced
	ChipKill	√		
	Redundancy memory	√ (supports Mirroring/Momory Raid)		
	Memory Hot-plug	√		
HDD	Standard	None		Supported HDD
	Maximum (Internal)	300GB or more x 5 ^{*2}		SCSI: Ultra320, 10K/15Krpm, SCA2
	HotPlug	√		^{*2} : 10Krpm/Alliance Carrier When the media bay is installed: HDD x 3 (max.)
SCSI I/F	Single unit	Ultra320 SCSI x 2ch		
	On Board RAID	√		
Disk Array	Internal	Standard (On Board)		^{*3} : N8103-81/-90 supported
	External	Option ^{*3}		
	No. of cards	4 (max.)		
LAN		Standard (1000/100/10Base-T x 2, 100/10Base-T (Management LAN))		On-Board, Remote Wake UP feature
Graphics	Chip	RADEON7000M ^{*4}		^{*4} : On-Board
	Resolution	640x480 to 1280x1024		
	VRAM	16MB		
FDD		3.5" USB FDD (2Mode) ^{*5}		^{*5} : Required option
CD-ROM	Standard	Slim type, X24		CD-ROM/DVD-RAM can be connected (exclusive use)
	IDE I/F	Ultra ATA100 x 1ch		
Device bay	5.25"	×		Ultra320 SCSI supported B.P ^{*6} : Disk Model and Device-Bay Model are mutually exclusive of BTO option.
	3.5"	1" height x 5 (Disk Model) ^{*6} 1" height x 3 + Device x1 (Device-Bay Model) ^{*6}		

Gibson-C/140Rd-4		Specifications	Description
I/O Slot	Slots	Total 9 Slots (PCI Express x 3, PCI-X x 4, PCI 32Bit/33MHz x2)	
	Hot Plug PCI	Total 6 Slots (PCI-X x 4, PCI 32Bit/33MHz x2)	
External interface	Front	Serial (RJ45) x 1 ^{*7} , USB x 1 ^{*8}	*8: The front USB port is dedicated to USB1.1.
	Rear	CRT x 1, KB (PS/2) x 1, MS (PS/2) x 1, USB x 2, Serial x 2 ^{*7} , Parallel x 1, 100Bast-TX x 1, 1000Base-TX x 1, Ultra320 SCSI x 1, ICMB x 2	*7: One of the serial ports is exclusive use with the front serial port. The rear serial port is the factory default.
RAS		√ IPMI supported	
Power supply		700W x 2 + 2	Two units are factory-installed
Redundant power supply		√ (Hot Swappable)	AC power redundant configuration with maximum of four units.
Redundant fan		√ (Hot Swappable)	
Switch	Front	Power, Sleep, Reset, Dump, UID	
	Rear	None	
Security key		Provided	
LED	Front	Power/Sleep, System Status, HDD, LAN Link/Act x 2, UID, Attention, Processor, MEM, IO, PSU, FAN, TEMP	
	Rear	LAN Link/Act x2, LAN Speed, UID	
Cabinet design (WxDxH)		4U Rack(483×741×178mm)	140Rd-4
Standard accessories		EXPRESSBUILDER, Packing List, Slide Rail, Cable Arm	
Support OS		W2K, W2K3, Linux	

1.4.2 Gibson-Cranford/140He

Gibson-C/140He		Specifications		Remarks
CPU	Processor	Cranford x 1 to 4		Adopted CPU: Cranford (3.16GHz/667/1M) Cranford (3.66GHz/667/1M)
	CLK	3.16GHz	3.66GHz	
	FSB	667MHz		
	Package	MPGA		
	L2 Cache	1MB		
Chipset		Intel Twin Castle		
Memory	Standard	1GB (512 MB DIMM x 2)		4Way-Interleave
	Maximum	32GB (16 DIMMs in total)		512MB DIMM x2
	Adding unit	DDR-2 400 SDRAM DIMM (Registered) x 2		1GB DIMM x2 2GB DIMM x2
	Adding times	8 times ^{*1}		Additional memory backboard
	Check	ECC		^{*1} : When factory-installed DIMMs are replaced
	ChipKill	√		
	Redundancy memory	√ (supports Mirroring/Momory Raid)		
	Memory Hot-plug	√		
HDD	Standard	None		Supported HDD
	Maximum (Internal)	300GB or more x 13 ^{*2}		SCSI: Ultra320, 10K/15Krpm, SCA2
	HotPlug	√		^{*2} : 10Krpm/Alliance Carrier When optional HDD cage is installed
SCSI I/F	Single unit	Ultra320 SCSI x 2ch		
	OnBoard RAID	√		
Disk Array	Internal	Standard (On Board)		^{*3} : N8103-81/-90 supported
	External	Optional ^{*3}		
	No. of cards	4 (max.)		
LAN		Standard (1000/100/10Base-T x 2, 100/10Base-T (Management LAN))		On-Board, Remote Wake UP feature
Graphics	Chip	RADEON7000M ^{*4}		^{*4} : On-Board
	Resolution	640x480 to 1280x1024		
	VRAM	16MB		
FDD		3.5" FDD (3Mode)		
CD-ROM	Standard	Slim type, X24		CD-ROM/DVD-RAM can be connected (exclusive use)
	IDE I/F	Ultra ATA100 x 1ch		
Device bay	5.25"	1" height x 2		Ultra320 SCSI supported B.P ^{*6} : When optional HDD cage is installed.
	3.5"	1" height x 5 +8 ^{*6}		
I/O Slot	Slots	Total 9 Slots (PCI Express x 3, PCI-X x 4, PCI 32Bit/33MHz x2)		

Gibson-C/140He		Specifications	Remarks
	Hot Plug PCI	Total 6 Slots (PCI-X x 4, PCI 32Bit/33MHz x2)	
External interface	Front	Serial (RJ45) x 1 ^{*5} , USB x 1 ^{*6}	*6: The front USB port is dedicated to USB1.1.
	Rear	CRT x 1, KB (PS/2) x 1, MS (PS/2) x 1, USB x 2, Serial x 2 ^{*5} , Parallel x 1, 100Base-TX x 1, 1000Base-TX x 1, Ultra320 SCSI x 1, ICMB x 2	*5: One of the serial ports is exclusive use with the front serial port. The rear serial port is the factory default.
RAS		√ IPMI supported	
Power supply		700W x 3 + 1	Three units are factory-installed
Redundant power supply		√ (Hot Swappable)	
Redundant fan		√ (Hot Swappable)	
Switch	Front	Power, Sleep, Reset, Dump, UID	
	Rear	None	
Security key		Provided	
LED	Front	Power/Sleep, System Status, HDD, LAN Link/Act x 2, UID, Attention, Processor, MEM, IO, PSU, FAN, TEMP	
	Rear	LAN Link/Act x2, LAN Speed, UID	
Cabinet design (WxDxH)		Tower (219×681×453mm)	140He
Standard accessories		EXPRESSBUILDER, Packing List, Keyboard, Mouse	
Support OS		W2K, W2K3, Linux	

1.4.3 Gibson-Potomac/140Rd-4

Gibson-P/140Rd-4		Specifications	Remarks
CPU	Processor	Potomac x 1 to 4	Adopted CPU: Potomac (2.83GHz/667/8M) Potomac (3.0GHz/667/8M) Potomac (3.33GHz/667/8M)
	CLK	3.33GHz	
	FSB	667MHz	
	Package	MPGA	
	L2 Cache	1MB	
	L3 Cache	8MB	
Chipset		Intel Twin Castle	
Memory	Standard	1GB (512MB DIMM x 2)	4Way-Interleave 512MB DIMM x2 1GB DIMM x2 2GB DIMM x2 Additional memory backboard *1: When factory-installed DIMMs are replaced
	Maximum	32GB (16 DIMMs in total)	
	Adding unit	DDR-2 400 SDRAM DIMM (Registered) x 2	
	Adding times	8 times *1	
	Check	ECC	
	ChipKill	√	
	Redundancy memory	√ (supports Mirroring/Memory Raid)	
	Memory Hot-plug	√	
HDD	Standard	None	Supported HDD SCSI: Ultra320, 10K/15Krpm, SCA2 *2: 10Krpm/Alliance Carrier When the media bay is installed: HDD x 3 (max.)
	Maximum (Internal)	300GB or more x 5 *2	
	HotPlug	√	
SCSI I/F	Single unit	Ultra320 SCSI x 2ch	
	On Board RAID	√	
Disk Array	Internal	Standard (On Board)	*3: N8103-81/-90 supported
	External	Option *3	
	No. of cards	4 (max.)	
LAN		Standard (1000/100/10Base-T x 2, 100/10Base-T (Management LAN))	On-Board, Remote Wake UP feature
Graphics	Chip	RADEON7000M *4	*4: OnBoard
	Resolution	640x480~1280x1024	
	VRAM	16MB	
FDD		3.5" USB FDD (2Mode) *5	*5: Required option
CD-ROM	Standard	Slim type, X24	CD-ROM/DVD-RAM can be connected (exclusive use)
	IDE I/F	Ultra ATA100 x 1ch	
Device bay	5.25"	×	Ultra320 SCSI supported B.P *6: Disk Model and Device-Bay Model are mutually exclusive of BTO option.
	3.5"	1" height x 5 (Disk Model) *6 1" height x 3 + Device x1 (Device-Bay Model) *6	

Gibson-P/140Rd-4		Specifications	Remarks
I/O Slot	Slots	Total 9 Slots (PCI Express x 3, PCI-X x 4, PCI 32Bit/33MHz x2)	
	Hot Plug PCI	Total 6 Slots (PCI-X x 4, PCI 32Bit/33MHz x2)	
External interface	Front	Serial (RJ45) x 1 ^{*7} , USB x 1 ^{*8}	*8: The front USB port is dedicated to USB1.1.
	Rear	CRT x 1, KB (PS/2) x 1, MS (PS/2) x 1, USB x 2, Serial x 2 ^{*7} , Parallel x 1, 100Bast-TX x 1, 1000Base-TX x 1, Ultra320 SCSI x 1, ICMB x 2	*7: One of the serial ports is exclusive use with the front serial port. The rear serial port is the factory default.
RAS		√ IPMI supported	
Power supply		700W x 2 + 2	Two units are factory-installed
Redundant power supply		√ (Hot Swappable)	AC power redundant configuration with maximum of four units.
Redundant fan		√ (Hot Swappable)	
Switch	Front	Power, Sleep, Reset, Dump, UID	
	Rear	None	
Security key		Provided	
LED	Front	Power/Sleep, System Status, HDD, LAN Link/Act x 2, UID, Attention, Processor, MEM, IO, PSU, FAN, TEMP	
	Rear	LAN Link/Act x2, LAN Speed, UID	
Cabinet design (WxDxH)		4U Rack (483 × 741 × 178mm)	140Rd-4
Standard accessories		EXPRESSBUILDER, Packing List, Slide Rail, Cable Arm	
Support OS		W2K, W2K3, Linux	

1.4.4 Gibson-Potomac/140He

Gibson-P/140He		Specifications	Remarks
CPU	Processor	Potomac x 1~4	Adopted CPU: Potomac (2.83GHz/667/8M) Potomac (3.0GHz/667/8M) Potomac (3.33GHz/667/8M)
	CLK	3.33GHz	
	FSB	667MHz	
	Package	MPGA	
	L2 Cache	1MB	
	L3 Cache	8MB	
Chipset		Intel Twin Castle	
Memory	Standard	1GB (512MB DIMM x 2)	4Way-Interleave 512MB DIMM x2 1GB DIMM x2 2GB DIMM x2 Additional memory backboard *1: When factory-installed DIMMs are replaced
	Maximum	32GB (16 DIMMs in total)	
	Adding unit	DDR-2 400 SDRAM DIMM (Registered) x 2	
	Adding times	8 times ^{*1}	
	Check	ECC	
	ChipKill	√	
	Redundancy memory	√ (supports Mirroring/Memory Raid)	
	Memory Hot-plug	√	
HDD	Standard	None	Supported HDD SCSI: Ultra320, 10K/15Krpm, SCA2 *2: 10Krpm/Alliance Carrier When optional HDD cage is installed
	Maximum (Internal)	300GB or more x 13 ^{*2}	
	HotPlug	√	
SCSI I/F	Single unit	Ultra320 SCSI x 2ch	
	OnBoard RAID	√	
Disk Array	Internal	Standard (On Board)	*3: N8103-81/-90 supported
	External	Option ^{*3}	
	No. of cards	4 (max.)	
LAN		Standard (1000/100/10Base-T x 2, 100/10Base-T (Management LAN))	On-Board, Remote Wake UP feature
Graphics	Chip	RADEON7000M ^{*4}	*4: OnBoard
	Resolution	640x480~1280x1024	
	VRAM	16MB	
FDD		3.5" FDD (3Mode)	
CD-ROM	Standard	Slim type, X24	CD-ROM/DVD-RAM can be connected (exclusive use)
	IDE I/F	Ultra ATA100 x 1ch	
Device bay	5.25"	1" height x 2	Ultra320 SCSI supported B.P *6: When optional HDD cage is installed.
	3.5"	1" height x 5 +8 ^{*6}	
I/O Slot	Slots	Total 9 Slots (PCI Express x 3, PCI-X x 4, PCI 32Bit/33MHz x2)	

Gibson-P/140He		Specifications	Remarks
	Hot Plug PCI	Total 6 Slots (PCI-X x 4, PCI 32Bit/33MHz x2)	
External interface	Front	Serial (RJ45) x 1 ^{*5} , USB x 1 ^{*6}	*6: The front USB port is dedicated to USB1.1.
	Rear	CRT x 1, KB (PS/2) x 1, MS (PS/2) x 1, USB x 2, Serial x 2 ^{*5} , Parallel x 1, 100Base-TX x 1, 1000Base-TX x 1, Ultra320 SCSI x 1, ICMB x 2	*5: One of the serial ports is exclusive use with the front serial port. The rear serial port is the factory default.
RAS		√ IPMI supported	
Power supply		700W x 3 + 1	Three units are factory-installed
Redundant power supply		√ (Hot Swappable)	
Redundant fan		√ (Hot Swappable)	
Switch	Front	Power, Sleep, Reset, Dump, UID	
	Rear	None	
Security key		Provided	
LED	Front	Power/Sleep, System Status, HDD, LAN Link/Act x 2, UID, Attention, Processor, MEM, IO, PSU, FAN, TEMP	
	Rear	LAN Link/Act x2, LAN Speed, UID	
Cabinet design (WxDxH)		Tower (219×681×453mm)	140He
Standard accessories		EXPRESSBUILDER, Packing List, Keyboard, Mouse	
Support OS		W2K, W2K3, Linux	

1.4.5 Gibson-Paxville/140Rd-4

Gibson-Px/140Rd-4		Specifications	Remarks
CPU	Processor	Paxville x 1 to 4	Adopted CPU: Paxville (2.66GHz/667/4M) Paxville (3GHz/667/4M)
	CLK	3GHz	
	FSB	667MHz	
	Package	MPGA	
	L2 Cache	2x2MB	
	L3 Cache	None	
Chipset		Intel Twin Castle	
Memory	Standard	1GB (512MB DIMM x 2)	4Way-Interleave 512MB DIMM x2 1GB DIMM x2 2GB DIMM x2 Additional memory backboard *1: When factory-installed DIMMs are replaced
	Maximum	32GB (16 DIMMs in total)	
	Adding unit	DDR-2 400 SDRAM DIMM (Registered) x 2	
	Adding times	8 times *1	
	Check	ECC	
	ChipKill	√	
	Redundancy memory	√ (supports Mirroring/Memory Raid)	
	Memory Hot-plug	√	
HDD	Standard	None	Supported HDD SCSI: Ultra320, 10K/15Krpm, SCA2 *2: 10Krpm/Alliance Carrier When the media bay is installed: HDD x 3 (max.)
	Maximum (Internal)	300GB or more x 5 *2	
	HotPlug	√	
SCSI I/F	Single unit	Ultra320 SCSI x 2ch	
	On Board RAID	√	
Disk Array	Internal	Standard (On Board)	*3: N8103-81/-90 supported
	External	Option *3	
	No. of cards	4 (max.)	
LAN		Standard (1000/100/10Base-T x 2, 100/10Base-T (Management LAN))	On-Board, Remote Wake UP feature
Graphics	Chip	RADEON7000M *4	*4: OnBoard
	Resolution	640x480~1280x1024	
	VRAM	16MB	
FDD		3.5" USB FDD (2Mode) *5	*5: Required option
CD-ROM	Standard	Slim type, X24	CD-ROM/DVD-RAM can be connected (exclusive use)
	IDE I/F	Ultra ATA100 x 1ch	
Device bay	5.25"	×	Ultra320 SCSI supported B.P *6: Disk Model and Device-Bay Model are mutually exclusive of BTO option.
	3.5"	1" height x 5 (Disk Model) *6 1" height x 3 + Device x1 (Device-Bay Model) *6	

Gibson-Px/140Rd-4		Specifications	Remarks
I/O Slot	Slots	Total 9 Slots (PCI Express x 3, PCI-X x 4, PCI 32Bit/33MHz x2)	
	Hot Plug PCI	Total 6 Slots (PCI-X x 4, PCI 32Bit/33MHz x2)	
External interface	Front	Serial (RJ45) x 1 ^{*7} , USB x 1 ^{*8}	*8: The front USB port is dedicated to USB1.1.
	Rear	CRT x 1, KB (PS/2) x 1, MS (PS/2) x 1, USB x 2, Serial x 2 ^{*7} , Parallel x 1, 100Bast-TX x 1, 1000Base-TX x 1, Ultra320 SCSI x 1, ICMB x 2	*7: One of the serial ports is exclusive use with the front serial port. The rear serial port is the factory default.
RAS		√ IPMI supported	
Power supply		700W x 2 + 2	Two units are factory-installed
Redundant power supply		√ (Hot Swappable)	AC power redundant configuration with maximum of four units.
Redundant fan		√ (Hot Swappable)	
Switch	Front	Power, Sleep, Reset, Dump, UID	
	Rear	None	
Security key		Provided	
LED	Front	Power/Sleep, System Status, HDD, LAN Link/Act x 2, UID, Attention, Processor, MEM, IO, PSU, FAN, TEMP	
	Rear	LAN Link/Act x2, LAN Speed, UID	
Cabinet design (WxDxH)		4U Rack (483 × 741 × 178mm)	140Rd-4
Standard accessories		EXPRESSBUILDER, Packing List, Slide Rail, Cable Arm	
Support OS		W2K, W2K3, Linux	

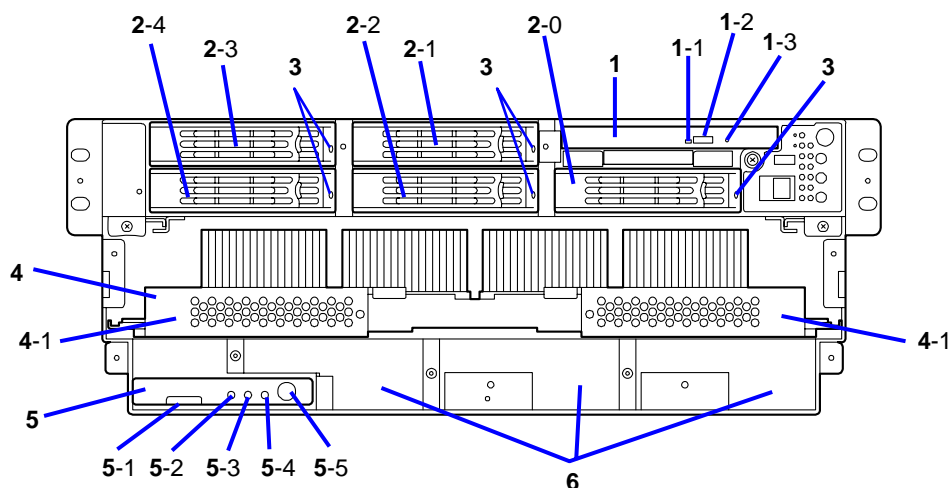
1.4.6 Gibson-Paxville/140He

Gibson-Px/140He		Specifications	Remarks
CPU	Processor	Paxville x 1~4	Adopted CPU: Paxville (2.66GHz/667/4M) Paxville (3GHz/667/4M)
	CLK	3GHz	
	FSB	667MHz	
	Package	MPGA	
	L2 Cache	2x2MB	
	L3 Cache	None	
Chipset		Intel Twin Castle	
Memory	Standard	1GB (512MB DIMM x 2)	4Way-Interleave 512MB DIMM x2 1GB DIMM x2 2GB DIMM x2 Additional memory backboard *1: When factory-installed DIMMs are replaced
	Maximum	32GB (16 DIMMs in total)	
	Adding unit	DDR-2 400 SDRAM DIMM (Registered) x 2	
	Adding times	8 times ^{*1}	
	Check	ECC	
	ChipKill	√	
	Redundancy memory	√ (supports Mirroring/Memory Raid)	
	Memory Hot-plug	√	
HDD	Standard	None	Supported HDD SCSI: Ultra320, 10K/15Krpm, SCA2 *2: 10Krpm/Alliance Carrier When optional HDD cage is installed
	Maximum (Internal)	300GB or more x 13 ^{*2}	
	HotPlug	√	
SCSI I/F	Single unit	Ultra320 SCSI x 2ch	
	OnBoard RAID	√	
Disk Array	Internal	Standard (On Board)	*3: N8103-81/-90 supported
	External	Option ^{*3}	
	No. of cards	4 (max.)	
LAN		Standard (1000/100/10Base-T x 2, 100/10Base-T (Management LAN))	On-Board, Remote Wake UP feature
Graphics	Chip	RADEON7000M ^{*4}	*4: OnBoard
	Resolution	640x480~1280x1024	
	VRAM	16MB	
FDD		3.5" FDD (3Mode)	
CD-ROM	Standard	Slim type, X24	CD-ROM/DVD-RAM can be connected (exclusive use)
	IDE I/F	Ultra ATA100 x 1ch	
Device bay	5.25"	1" height x 2	Ultra320 SCSI supported B.P *6: When optional HDD cage is installed.
	3.5"	1" height x 5 +8 ^{*6}	
I/O Slot	Slots	Total 9 Slots (PCI Express x 3, PCI-X x 4, PCI 32Bit/33MHz x2)	

Gibson-Px/140He		Specifications	Remarks
	Hot Plug PCI	Total 6 Slots (PCI-X x 4, PCI 32Bit/33MHz x2)	
External interface	Front	Serial (RJ45) x 1 ^{*5} , USB x 1 ^{*6}	*6: The front USB port is dedicated to USB1.1.
	Rear	CRT x 1, KB (PS/2) x 1, MS (PS/2) x 1, USB x 2, Serial x 2 ^{*5} , Parallel x 1, 100Base-TX x 1, 1000Base-TX x 1, Ultra320 SCSI x 1, ICMB x 2	*5: One of the serial ports is exclusive use with the front serial port. The rear serial port is the factory default.
RAS		√ IPMI supported	
Power supply		700W x 3 + 1	Three units are factory-installed
Redundant power supply		√ (Hot Swappable)	
Redundant fan		√ (Hot Swappable)	
Switch	Front	Power, Sleep, Reset, Dump, UID	
	Rear	None	
Security key		Provided	
LED	Front	Power/Sleep, System Status, HDD, LAN Link/Act x 2, UID, Attention, Processor, MEM, IO, PSU, FAN, TEMP	
	Rear	LAN Link/Act x2, LAN Speed, UID	
Cabinet design (WxDxH)		Tower (219×681×453mm)	140He
Standard accessories		EXPRESSBUILDER, Packing List, Keyboard, Mouse	
Support OS		W2K, W2K3, Linux	

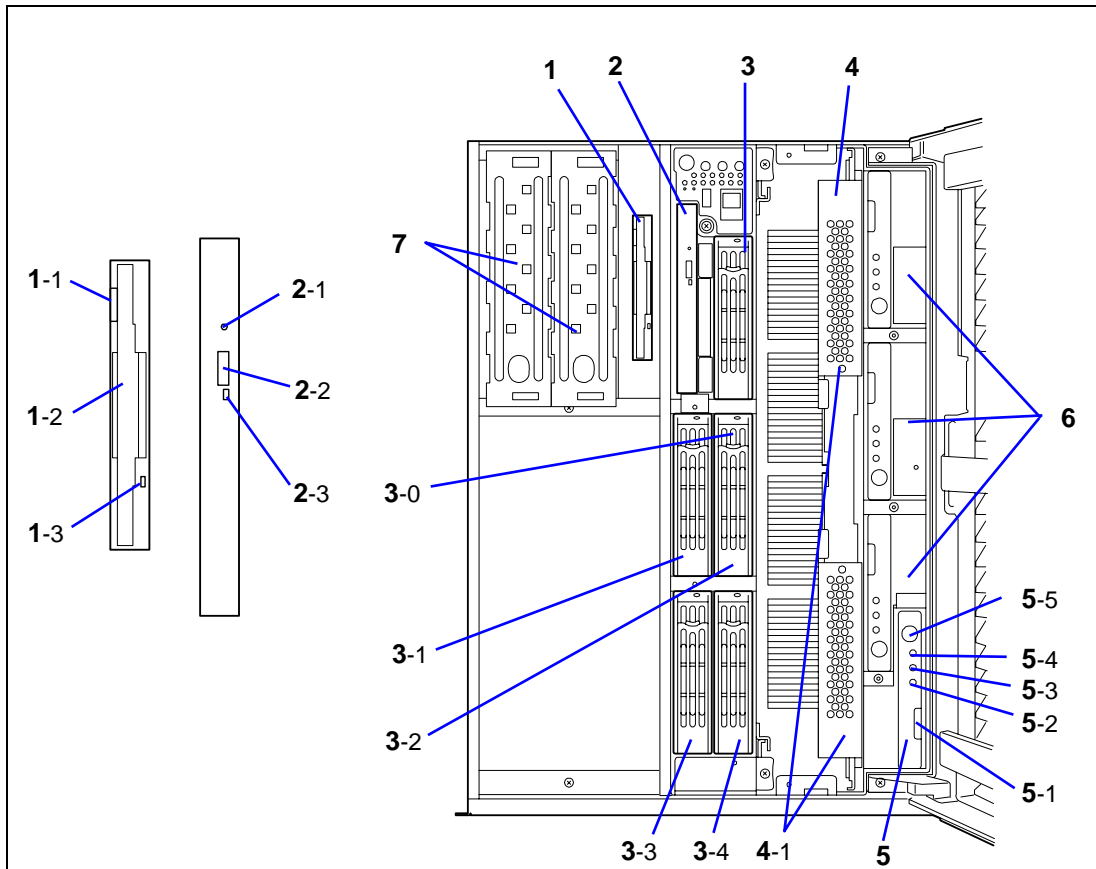
1.5 Names and Functions of Components

140Rd-4 Front View (with Front Bezel Removed)



- 1 CD-ROM drive**
The CD-ROM drive reads data from the inserted CD-ROM.
1-1: Access lamp (lit orange during accessing)
1-2: CD tray eject button
1-3: Emergency hole
- 2 3.5-inch hard disk bay/3.5-inch device bay**
Additional hard disk drive slots. 1-inch thick hard disk drives can be installed in this slot. The number following the bold-faced number indicates SCSI ID.
- 3 Disk lamp (green/amber)**
- 4 Processor board**
4-1 Board ejector
- 5 Memory board**
5-1 Board ejector
5-2 POWER lamp
5-3 Attention lamp
5-4 Redundancy lamp
5-5 Attention switch
- 6 Additional memory board slot**

140He Front View (with the Front Door Open)



1 3.5-inch floppy disk drive

Insert a 3.5-inch floppy disk to the 3.5-inch floppy disk drive to read data from the disk or write data to the disk.

1-1: Eject button

1-2: Disk slot

1-3: Floppy disk access lamp (lit green during accessing)

2 CD-ROM drive

The CD-ROM drive reads data from the inserted CD-ROM.

2-1: Emergency eject hole

2-3: Access lamp

2-2: CD Tray eject button

(lit orange during accessing)

3 3.5-inch disk bay

The 3.5-inch hard disk bay contains additional hard disk slots. 1-inch thick hard disk drives can be inserted into the slots. The number following the bold-faced character indicates the SCSI ID.

4 Processor board

4-1: Processor board ejector

5 Memory board

5-1: Memory board ejector

5-4: Memory board Redundancy lamp

5-2: Memory board Power lamp

5-5: Memory board Attention switch

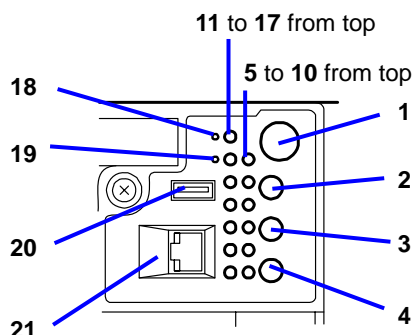
5-3: Memory board Attention lamp

6 Additional memory board slot

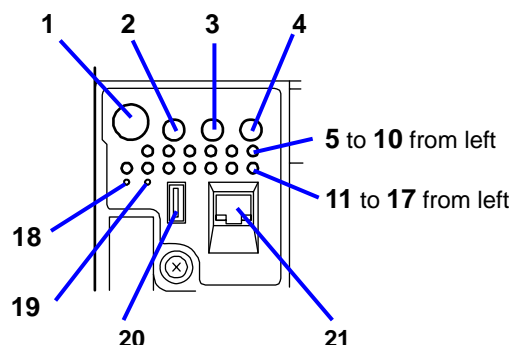
7 5.25-inch device bay

DAT (digital audio tape) drive or optical disk drive may be installed in the 5.25-inch device bay. Slot #1 (right) and slot #2 (left).

Front View (Switches and Lamps)



140Rd-4

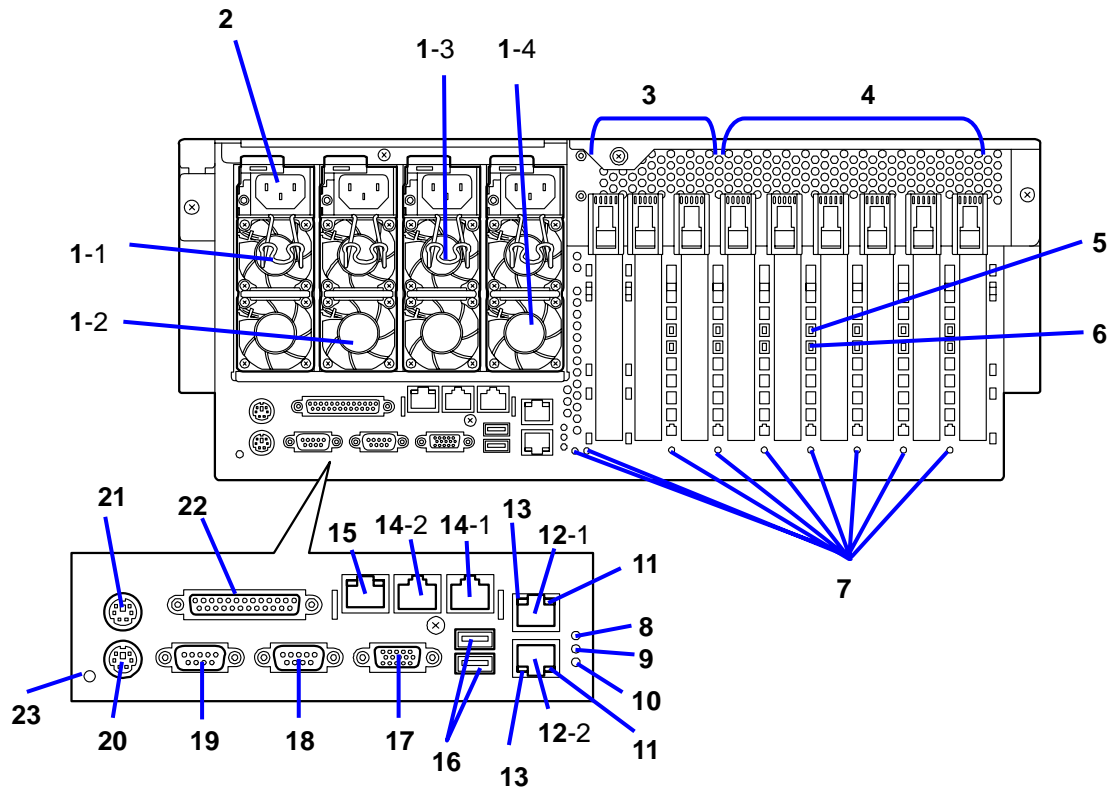


140He

- 1 POWER switch
The power switch is used to turn on/off the power. If you press the switch once, then the POWER/SLEEP lamp goes on and the power is turned on. If you press the switch again, the power is turned off. The system is forcibly shut down when the power switch is pressed continuously for four seconds or longer.
- 2 RESET switch
The reset switch is used to reset the server.
- 3 SLEEP switch
Pressing the sleep switch once causes the server to enter into the sleep state (power saving mode). Pressing the power switch in the sleep state recovers the machine to the normal state. (This function is supported by Windows Server 2003/Windows 2000.)
- 4 UID (Unit ID) switch
Pressing the UID switch turns UID lamp (blue) located on the front panel and the rear panel on and off. Pressing again the UID switch turns the lamp off.
- 5 POWER/SLEEP lamp (green)
- 6 STATUS lamp (green/amber)
- 7 DISK ACCESS lamp (green/amber)
- 8 LAN1 ACCESS lamp (green)
- 9 LAN2 ACCESS lamp (green)
- 10 UID lamp (blue)
- 11 Attention lamp
- 12 Processor board error lamp
- 13 Memory board error lamp
- 14 I/O board error lamp
- 15 Power supply unit error lamp
- 16 FAN error lamp
- 17 Thermal error lamp
- 18 Dump switch
The dump switch is used to collect the event logs having occurred in the server.
- 19 CLEAR switch
- 20 USB3 connector
Used to connect with a device accepting the USB 1.1 interface.
- 21 Serial Port B connector
Used to connect with a device having a serial interface. UPS must be connected to Serial Port A connector on the rear side of the server.

IMPORTANT: The shape of serial port B (on the rear panel) connector is the same as that of the LAN and ICMB connectors (RJ-45). Pay attention to connect the proper cable.

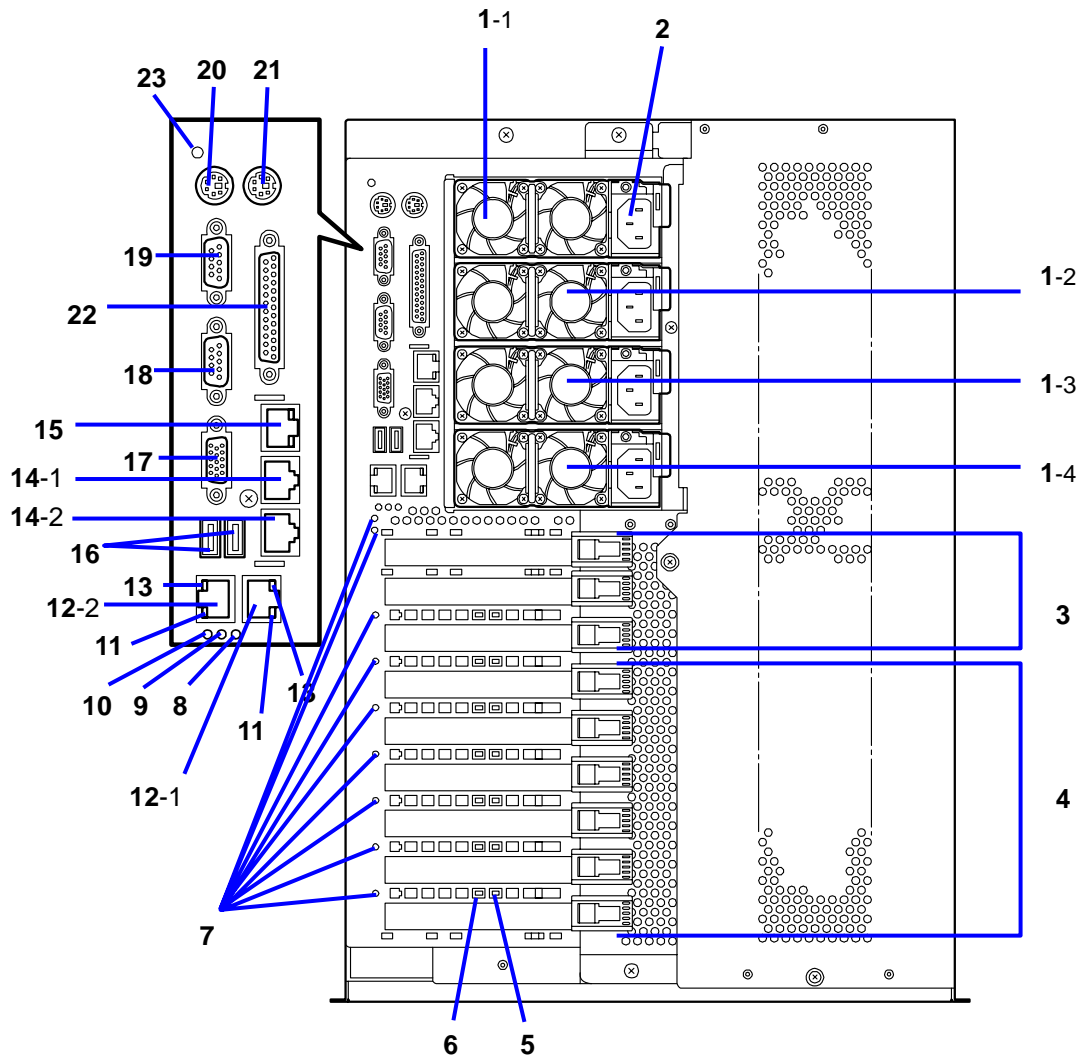
140Rd-4 Rear View



- 1 Power supply unit
The power supply unit supplies DC powers to the server. Slots 3 and 4 are optional.
- 2 AC inlet
The AC inlet is connected with the power cord of the server. Each power supply unit has an inlet. Use the power cord provided with the server.
- 3 Additional PCI board slot
Non-hot-plug slot for optional PCI board
PCI-Express (x4): 1 slot (Can contain x8 board.)
32-bit/33MHz: 2 slots
- 4 Additional PCI board slot
Hot-plug slot for optional PCI board
PCI-Express (x8): 2 slots
64-bit/100MHz PCI-X: 4 slots
- 5 PCI slot POWER lamp
- 6 PCI slot Fault lamp
- 7 PCI slot error lamp
- 8 I/O board error lamp
- 9 Processor board error lamp
- 10 BMC error lamp
- 11 1000/100/10 lamp
- 12 LAN connector
Used to connect with a network system on LAN.
The number following the bold-faced character shows the port number.

- 13 LINK/ACT lamp
- 14 ICMB connector
Used to connect a device having the ICMB interface. The number following the bold-faced character shows the port number.
- 15 Management LAN (A-BMC) port
- 16 USB-1 - USB-2 connectors
The USB-1 (upper) and USB-2 (lower) connectors are connected with devices accepting the USB interface (2.0).
- 17 Monitor connector
The monitor connector is connected with the display unit.
- 18 Serial port B connector
To be used exclusively with the serial port B connector on the front panel.
- 19 Serial port A connector
The serial port A connector is connected with a device having the serial interface. The server can't directly be connected to a leased line through the connector.
- 20 Keyboard connector
Used to connect with the optional keyboard.
- 21 Mouse connector
Used to connect with the optional mouse.
- 22 Printer port connector
Used to connect with a printer with the Centronics interface.
- 23 UID lamp

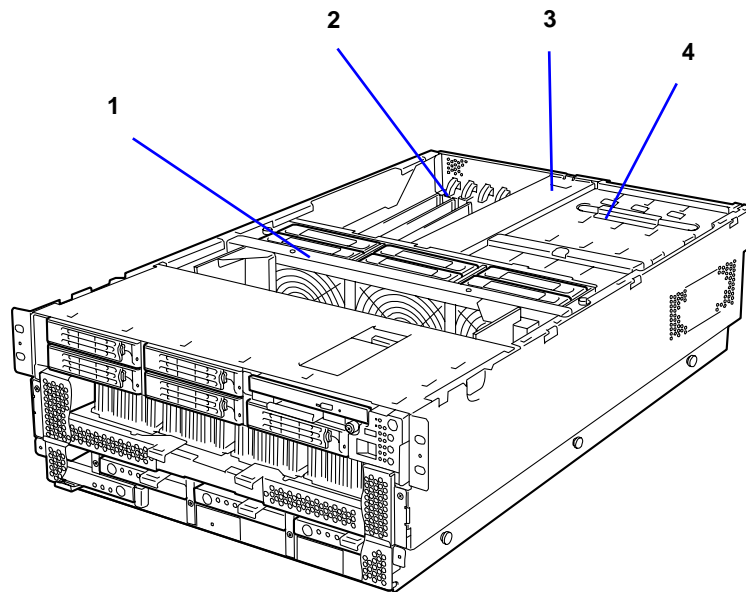
140He Rear View



- 1 Power supply unit
The power supply unit supplies DC powers to the server. Slot 4 is an optional slot.
- 2 AC inlet
The AC inlet is connected with the power cord of the server. Each power supply unit has an inlet. Use the power cord provided with the server.
- 3 Additional PCI board slot
Non-hot-plug slot for optional PCI board
PCI-Express (x4): 1 slot (Can contain x8 board.)
32-bit/33MHz: 2 slots
- 4 Additional PCI board slot
Hot-plug slot for optional PCI board
PCI-Express (x8): 2 slots
64-bit/100MHz PCI-X: 4 slots
- 5 PCI slot POWER lamp
- 6 PCI slot Fault lamp
- 7 PCI slot error lamp

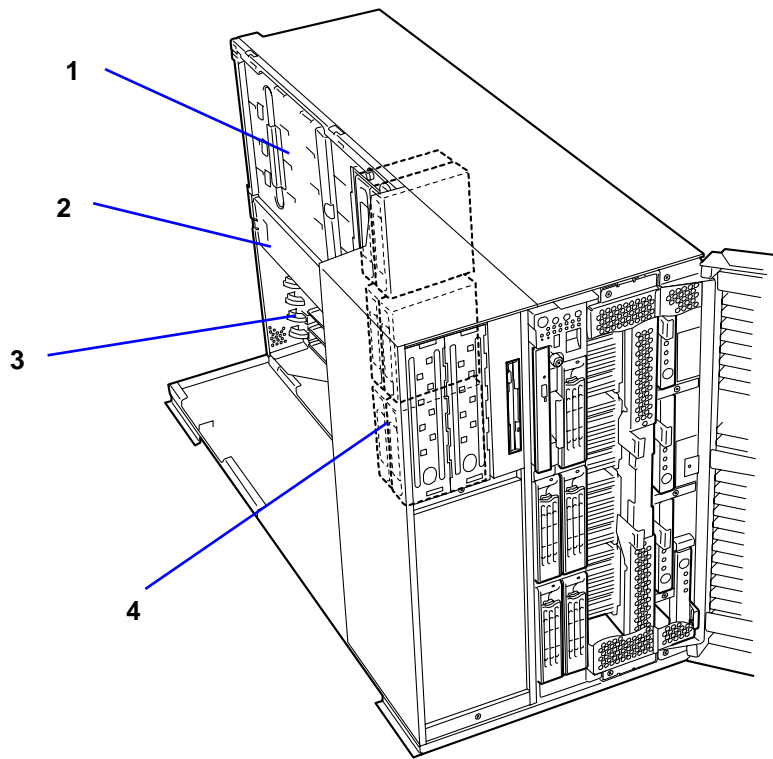
- 8 I/O board error lamp
- 9 Processor board error lamp
- 10 BMC error lamp
- 11 1000/100/10 lamp
- 12 LAN connector
Used to connect with a network system on LAN.
The number following the bold-faced character shows the port number.
- 13 LINK/ACT lamp
- 14 ICMB connector
Used to connect a device having the ICMB interface. The number following the bold-faced character shows the port number.
- 15 Management LAN (A-BMC) port
- 16 USB-1 - USB-2 connectors
The USB-1 (upper) and USB-2 (lower) connectors are connected with devices accepting the USB interface (2.0).
- 17 Monitor connector
The monitor connector is connected with the display unit.
- 18 Serial port B connector
To be used exclusively with the serial port B connector on the front panel.
- 19 Serial port A connector
The serial port A connector is connected with a device having the serial interface.
The server can't directly be connected to a leased line through the connector.
- 20 Keyboard connector
Used to connect with the optional keyboard.
- 21 Mouse connector
Used to connect with the optional mouse.
- 22 Printer port connector
Used to connect with a printer with the Centronics interface.
- 23 UID lamp

Internal View - 140Rd-4



- 1 Fan bay
- 2 Hot-plug PCI slot
- 3 Non-hot-plug PCI slot
- 4 Power supply cage

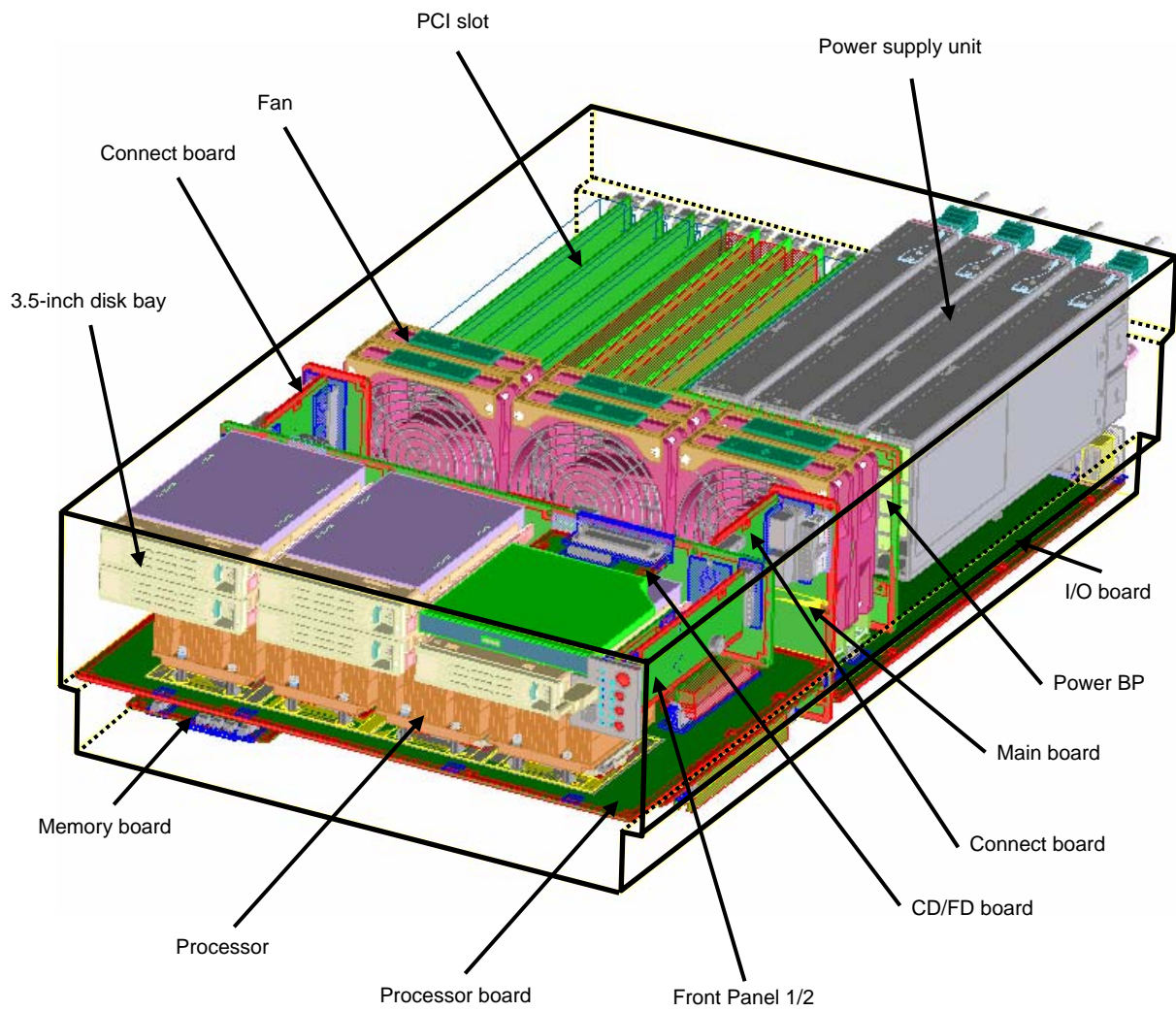
Internal View - 140He



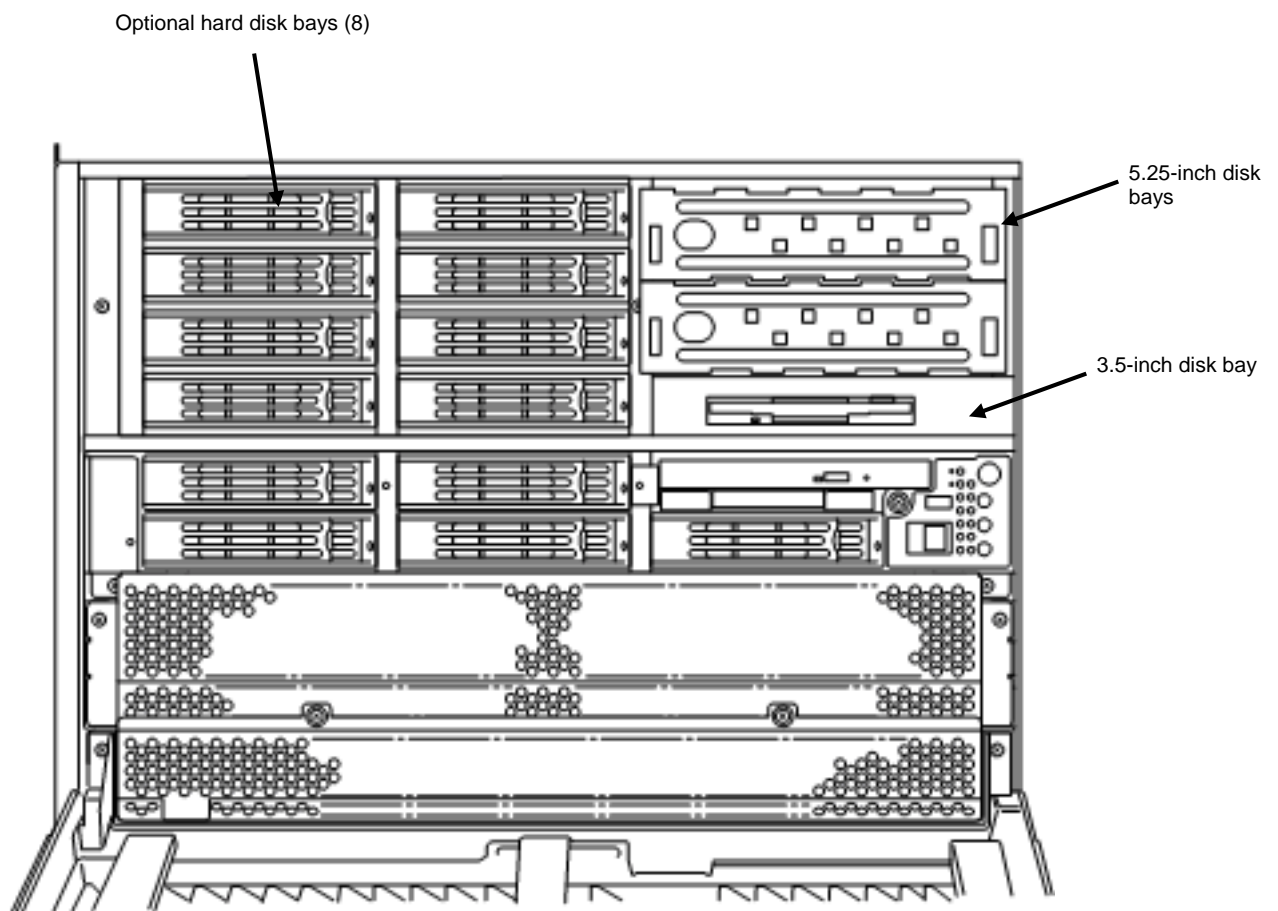
- 1 Power supply cage
- 2 Non-hot-plug PCI slot
- 3 Hot-plug PCI slot
- 4 Fan bay

Internal Configuration

140Rd-4, HDD 5-slot model



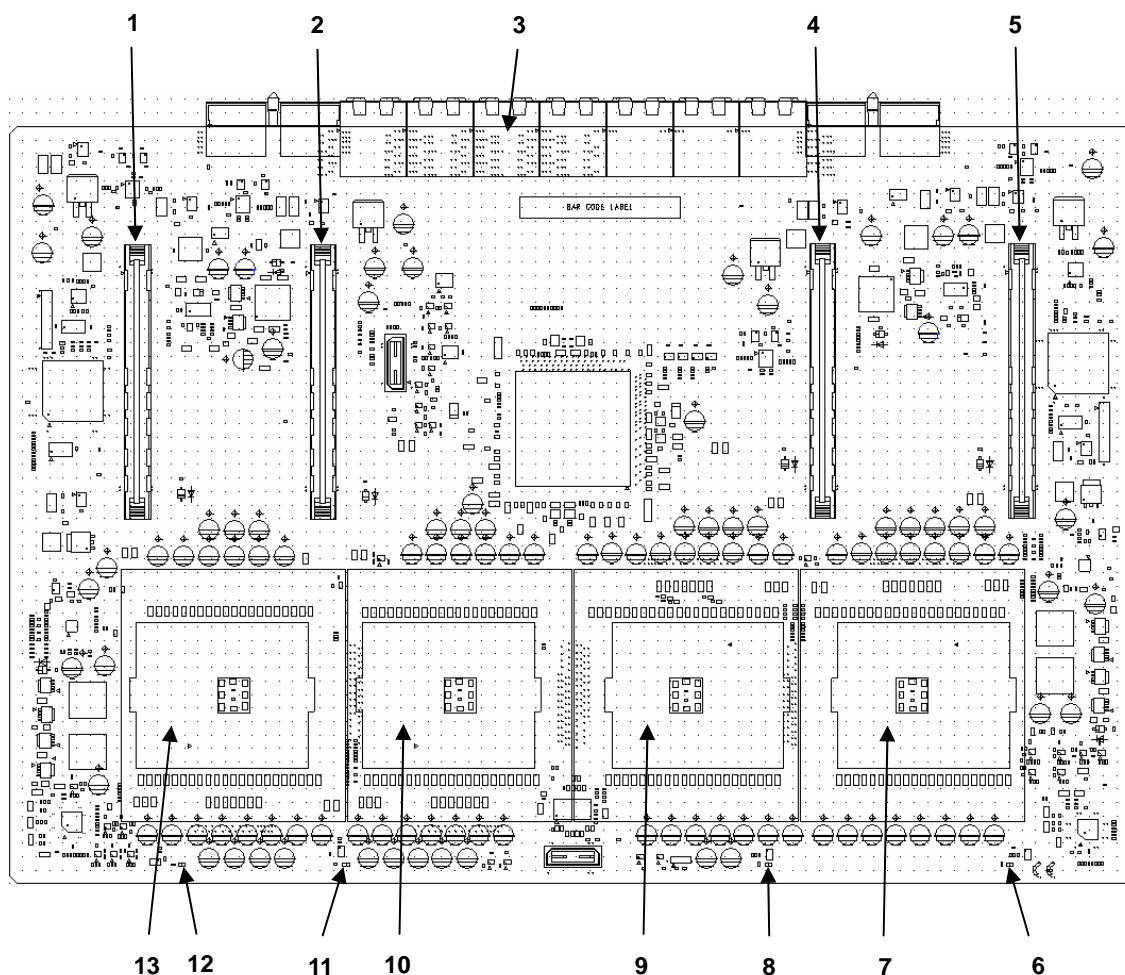
140He, same as 140Rd-4, plus the following:



1.6 Boards

1.6.1 Processor Board (Gibson-C: G7HRJ, Gibson-P: G7HUN, Gibson-Px: G7JBM)

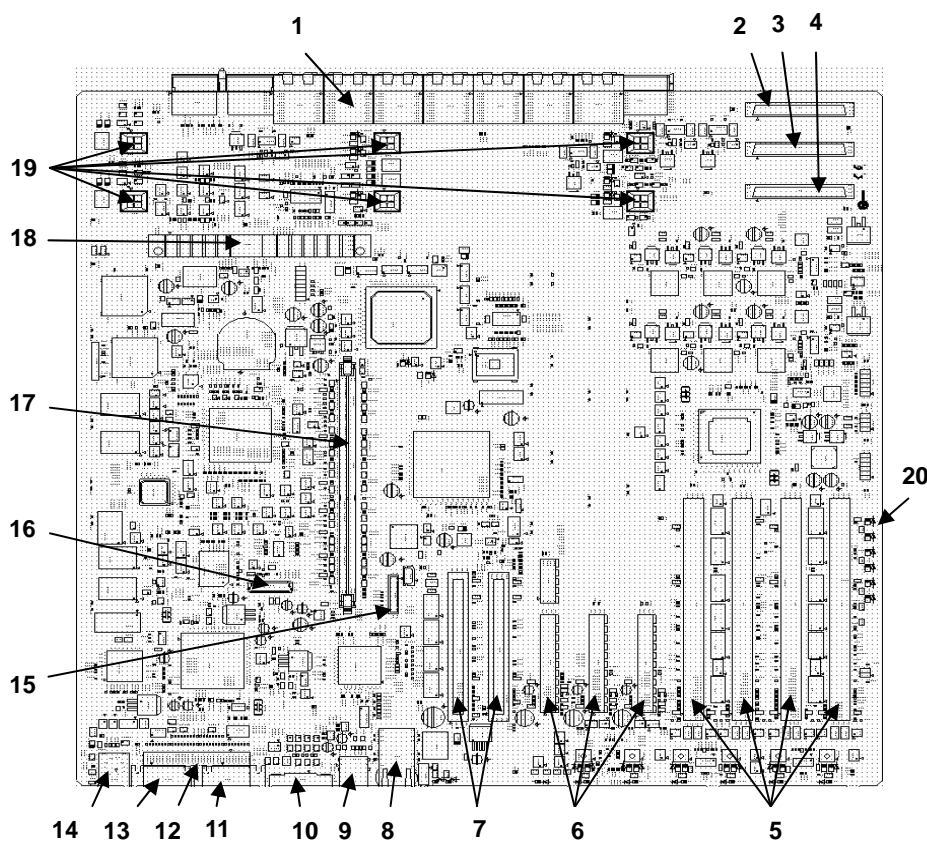
No.	Name	No.	Name
1	VRM#1 connector	2	VRM#2 connector
3	HMZD connector (To main Board)	4	VRM#4connector
5	VRM#3 connector	6	Processor#3/VRM#3 error LED
7	Processor #3 Slot	8	Processor#4/VRM#4 error LED
9	Processor #4 Slot	10	Processor #2 Slot
11	Processor#2/VRM#2 error LED	12	Processor#1/VRM#1 error LED
13	Processor #1 Slot		



1.6.2 I/O Board (G7HRH)

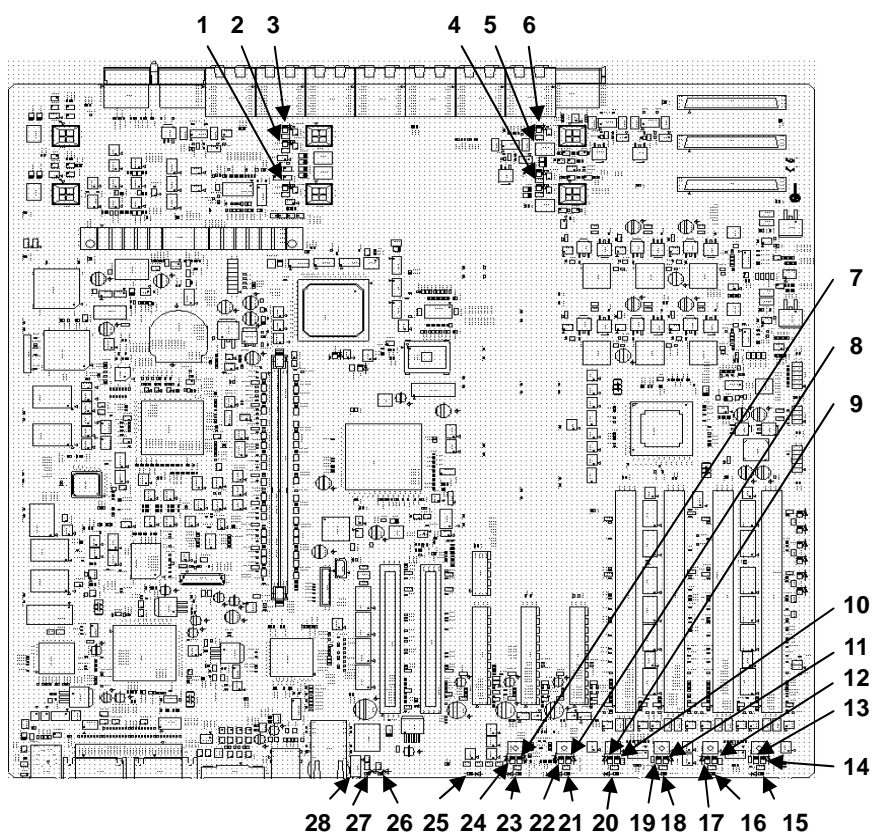
I/O Board Connector

No.	Name	No.	Name
1	HMZD connector (To main board)	2	SCSI connector (To SCSI BP)
3	SCSI connector (From On Board SCSI Ch1)	4	SCSI connector (From On Board SCSI Ch2)
5	PCI-X Slot (#6 to #9 from left)	6	PCI-EXPRESS Slot (#3 to #5 from left)
7	PCI Slot (33MHz/32Bit) (#1 to #2 from left)	8	1000/100/10Base-TX (#1 to #2 from top)
9	USB connector (#1 to #2 from top)	10	VGA connector
11	Serial port B connector	12	Parallel connector
13	Serial port A connector	14	Keyboard/Mouse connector (Upper: Mouse, lower: Keyboard)
15	A-BMC I/F connector	16	Battery connector for RAID
17	DIMM connector for RAID	18	Connector for power BP
19	Connectors for fan box Upper right: #1, Lower right: #4 Upper middle: #2, Lower middle: #5 Upper left: #3, Lower left: #6	20	CMOS/password clear jumper switch



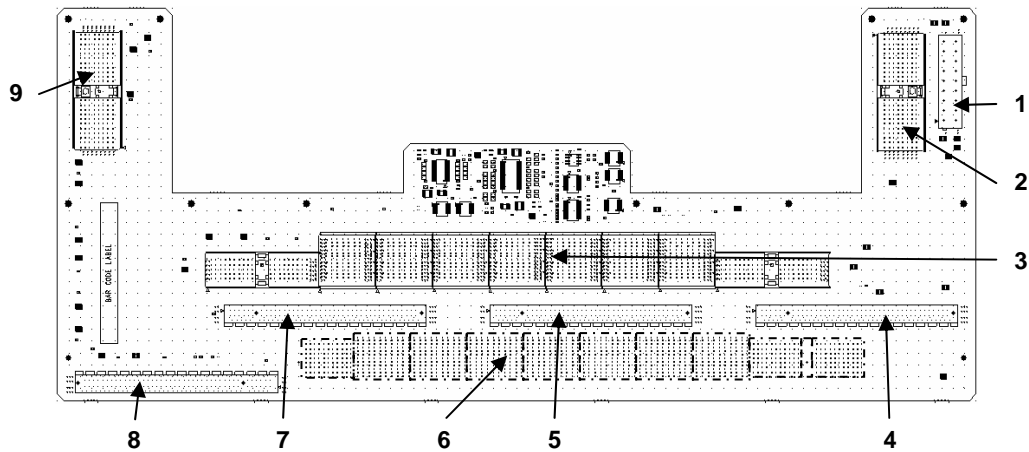
I/O Board LED

No.	Name	No.	Name
1	FAN#6 error lamp	2	FAN#3 error lamp
3	FAN#2 error lamp	4	FAN#5 error lamp
5	FAN#4 error lamp	6	FAN#1 error lamp
7	PCI Slot#4 Power lamp	8	PCI Slot#5 Power lamp
9	PCI Slot#6 Fault lamp	10	PCI Slot#6 Power lamp
11	PCI Slot#7 Power lamp	12	PCI Slot#8 Power lamp
13	PCI Slot#9 Fault lamp	14	PCI Slot#9 Power lamp
15	PCI Slot#9 error lamp	16	PCI Slot#8 error lamp
17	PCI Slot#8 Fault lamp	18	PCI Slot#7 error lamp
19	PCI Slot#7 Fault lamp	20	PCI Slot#6 error lamp
21	PCI Slot#5 error lamp	22	PCI Slot#5 Fault lamp
23	PCI Slot#4 error lamp	24	PCI Slot#4 Fault lamp
25	PCI Slot#3 error lamp	26	PCI Slot#2 error lamp
27	PCI Slot#1 error lamp	28	From top: IO Board error lamp Processor Board error lamp BMC error lamp



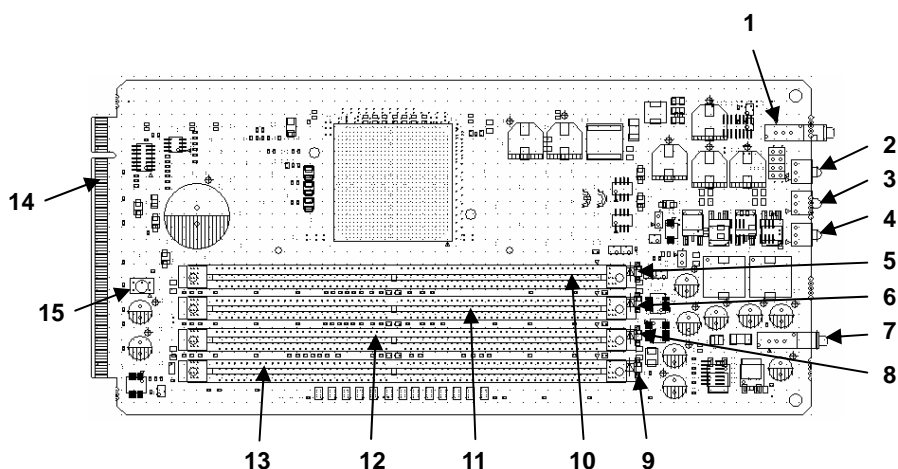
1.6.3 Main Board (G7HML)

No.	Name	No.	Name
1	Additional SCSI BP power connector	2	Connect Board connector
3	HMZD connector (From Processor Board)	4	Memory Slot #3 connector
5	Memory Slot #4 connector	6	HMZD connector (rear) (From I/O Board)
7	Memory Slot #2 connector	8	Memory Slot #1 connector
9	Connect Board connector		



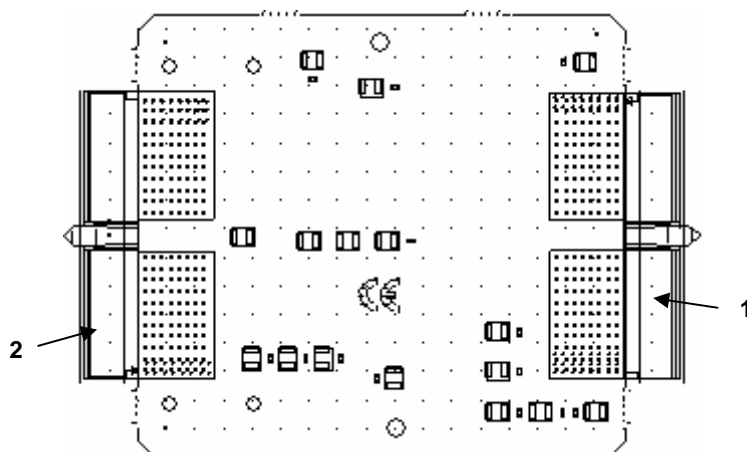
1.6.4 Memory Board (G7HMG)

No.	Name	No.	Name
1	Attention switch	2	Redundancy lamp
3	Attention lamp	4	Power lamp
5	DIMM #4 error lamp	6	DIMM #3 error lamp
7	MRL Switch	8	DIMM #2 error lamp
9	DIMM #1 error lamp	10	DIMM Slot #4
11	DIMM Slot #3	12	DIMM Slot #2
13	DIMM Slot #1	14	Card edge connector (To Main Board)
15	Switch to turn on DIMM slot error lamp		



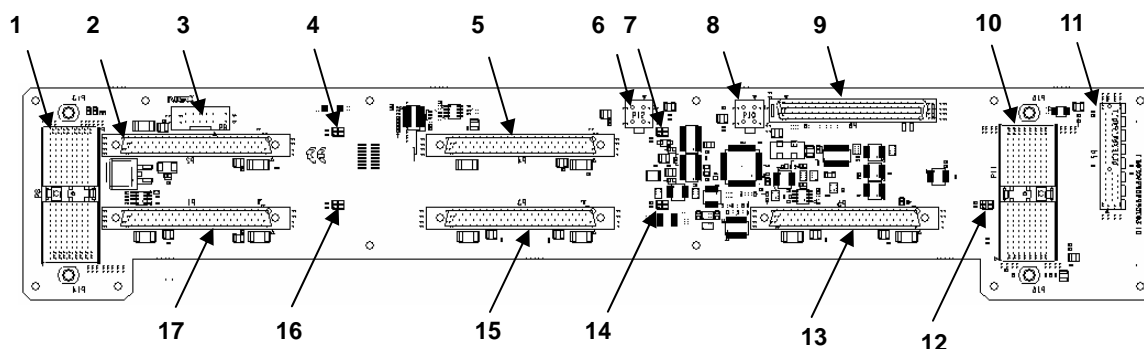
1.6.5 Connect Board (G7HMK)

No.	Name	No.	Name
1	Main BP connector (To Main Board)	2	SCSI BP connector (To Main Board)



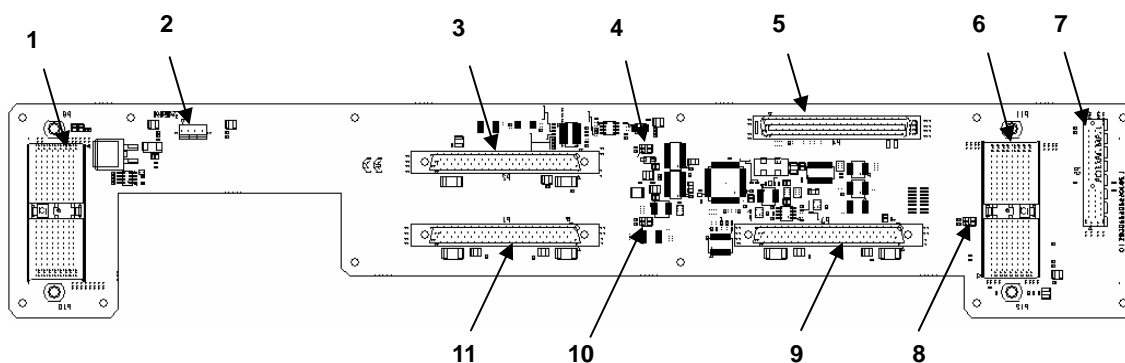
1.6.6 SCSI BP [5HDD] (G7HRK)

No.	Name	No.	Name
1	Connect Board connector (rear)	2	HDD #4 connector (ID: 3)
3	Additional SCSI BP connector (rear, dedicated to 140He)	4	HDD #4 lamp
5	HDD #2 connector (ID: 1)	6	Power connector for devices (rear, dedicated to 140He)
7	HDD #2 lamp	8	Power connector for devices (rear, dedicated to 140He)
9	CD/FD Board connector	10	Connect Board connector (rear)
11	Front Panel connector	12	HDD #1 lamp
13	HDD #1 connector (ID: 0)	14	HDD #3 lamp
15	HDD #3 connector (ID: 2)	16	HDD #5 lamp
17	HDD #5 connector (ID: 4)		



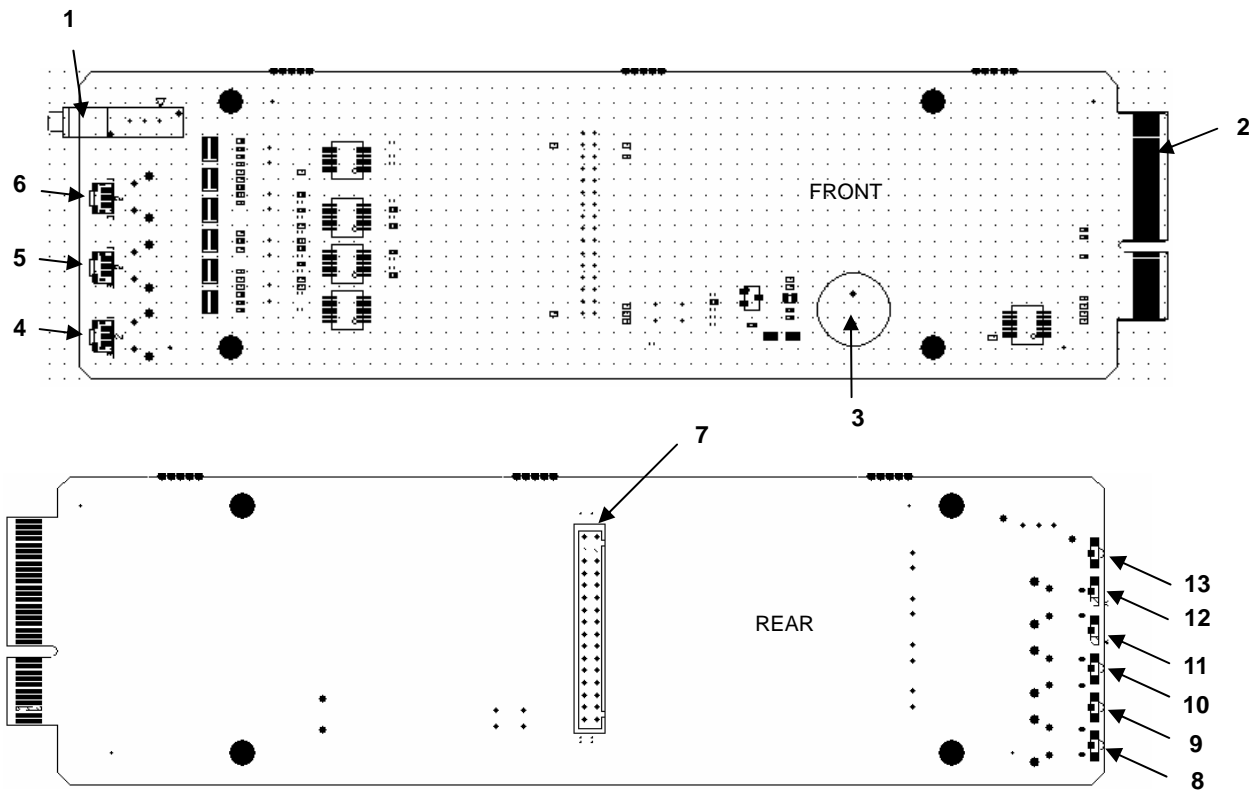
1.6.7 SCSI BP [3HDD] (G7HRL)

No.	Name	No.	Name
1	Connect Board connector (rear)	2	Connector for devices (rear)
3	HDD #2 connector (ID: 1)	4	HDD #2 lamp
5	CD/FD Board connector	6	Connect Board connector (rear)
7	Front Panel connector	8	HDD #1 lamp
9	HDD #1 connector (ID: 0)	10	HDD #3 lamp
11	HDD#3 connector (ID: 2)		



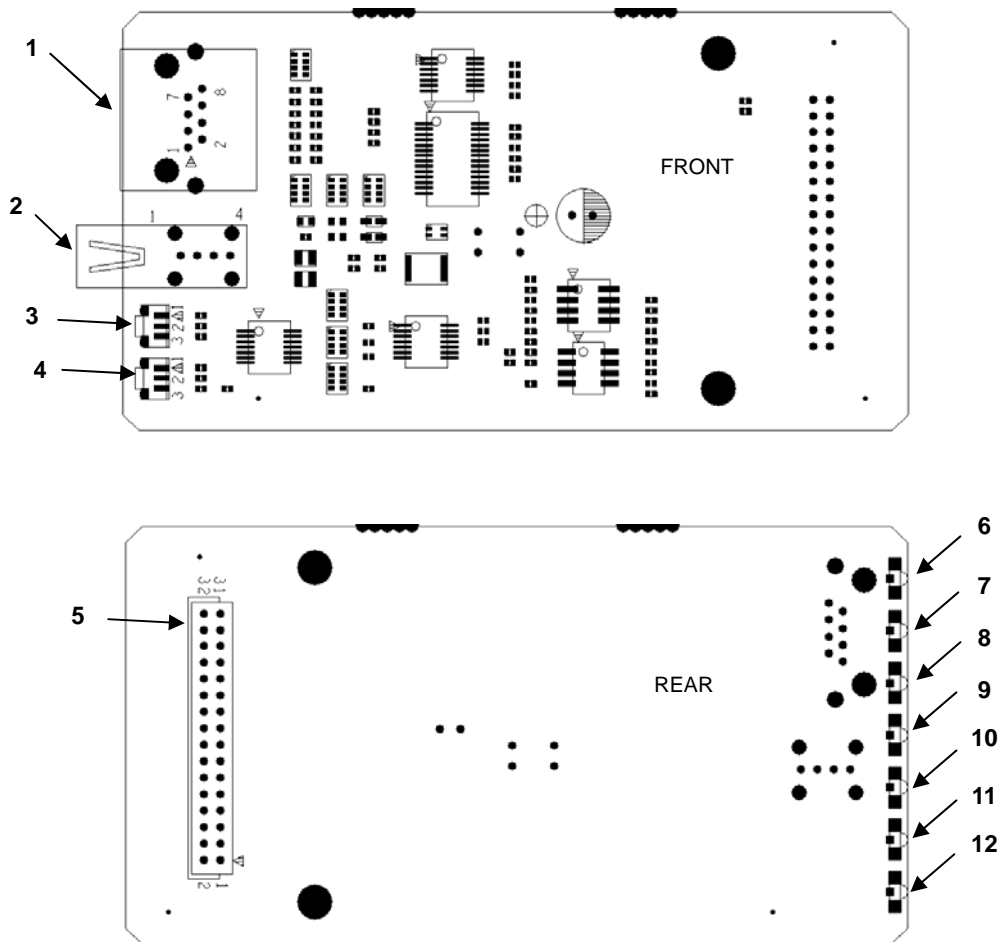
1.6.8 Front Panel 1 (G7HMN)

No.	Name	No.	Name
1	Power switch	2	Card edge for SCSI BP
3	Buzzer	4	UID switch
5	Sleep switch	6	Reset switch
7	Front Panel 2 connector	8	UID lamp
9	LAN2 access lamp	10	LAN1 access lamp
11	Disk access lamp	12	Status lamp
13	Power/Sleep lamp		



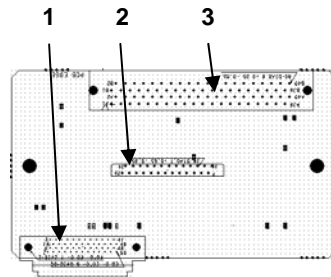
1.6.9 Front Panel 2 (G7HMP)

No.	Name	No.	Name
1	Serial port connector (RJ45)	2	USB connector
3	Clear switch	4	DUMP switch
5	Front Panel 1 connector	6	Thermal error lamp
7	FAN error lamp	8	Power unit error lamp
9	I/O board error lamp	10	Memory board error lamp
11	Processor board error lamp	12	Attention lamp



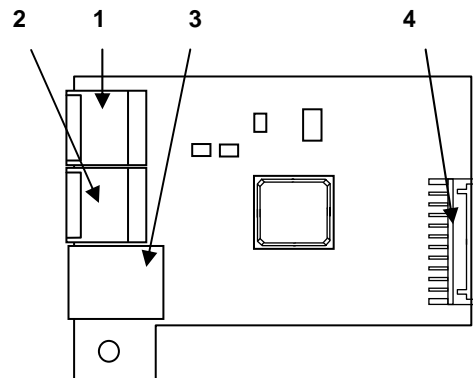
1.6.10 CD/FD Board (G7HMJ)

No.	Name	No.	Name
1	CD-ROM connector	2	FDD connector
3	SCSI BP connector		



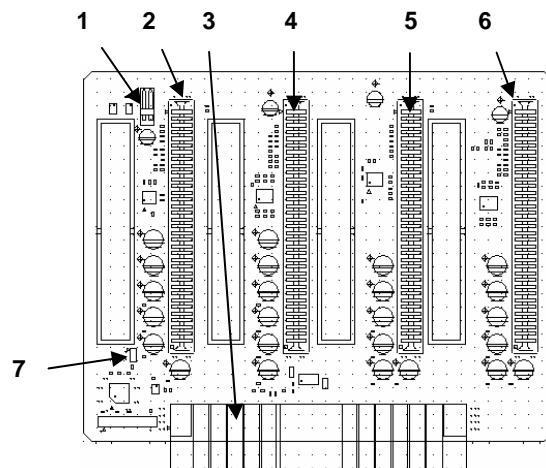
1.6.11 Management LAN Board (G7HTR)

No.	Name	No.	Name
1	ICMB#1 connector	2	ICMB#2 connector
3	Management LAN (A-BMC) connector	4	I/O Board connector



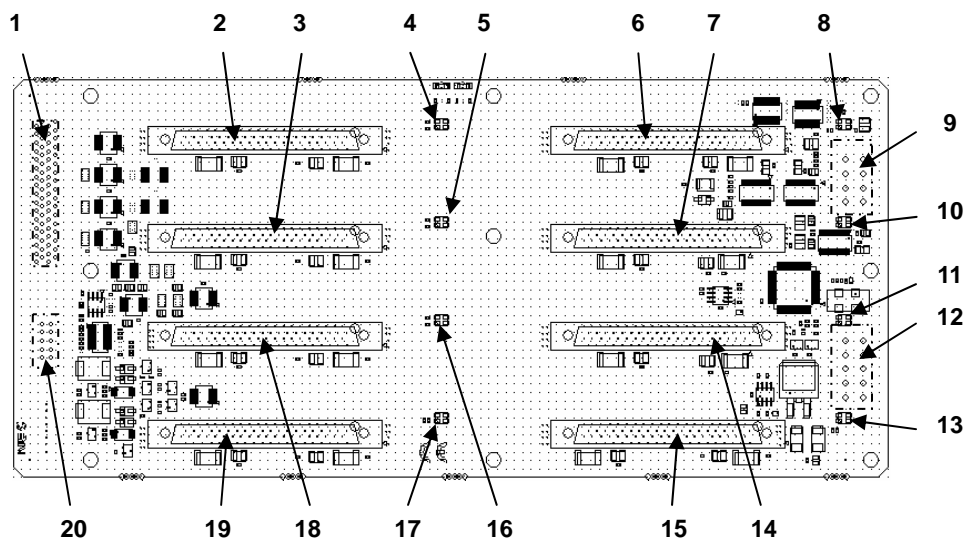
1.6.12 Power BP (G7HMM)

No.	Name	No.	Name
1	Open Sensor switch cable connector	2	PSU#1 connector
3	I/O Board connector	4	PSU#2 connector
5	PSU#3 connector	6	PSU#4 connector
7	Jumper switch for identifying chassis type Short: 140Rd-4 (Rack) Open: 140He (Tower)		



1.6.13 Additional SCSI BP (G7HUP)

No.	Name	No.	Name
1	SCSI connector (rear)	2	HDD #5 connector (ID: 8)
3	HDD #6 connector (ID: 9)	4	HDD #5 lamp
5	HDD #6 lamp	6	HDD #1 connector (ID: 0)
7	HDD #2 connector (ID: 1)	8	HDD #1 lamp
9	Power connector (rear, from Main-Board)	10	HDD #2 lamp
11	HDD #3 lamp	12	Power connector (rear, from Main-Board)
13	HDD #4 lamp	14	HDD #3 connector (ID: 2)
15	HDD #4 connector (ID: 3)	16	HDD #7 lamp
17	HDD #8 lamp	18	HDD #7 connector (ID: 10)
19	HDD #8 connector (ID: 11)	20	SCSI BP (for 5-HDDs) connector (rear, dedicated for 140He)



1.7 Lamp Indications

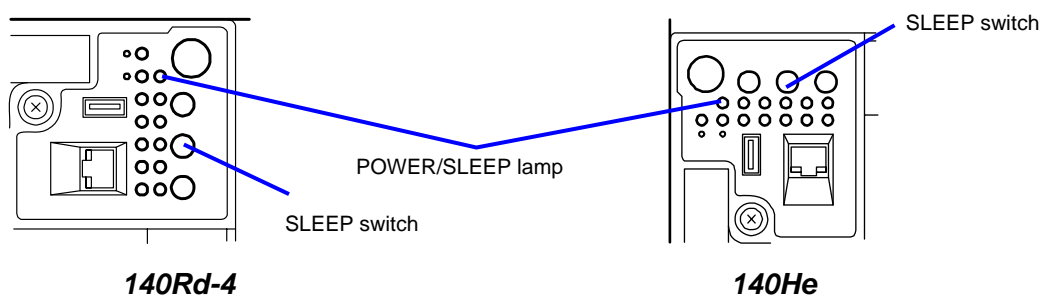
The following describes lamps on the server and their indications.

1.7.1 POWER/SLEEP Lamp

The green POWER/SLEEP lamp lights while the server is powered. When the server is off-powered, the POWER/SLEEP lamp goes off.

If the OS supports the power-saving mode, pressing the SLEEP switch or issuing a command to enter into the power-saving mode blinks the POWER/SLEEP lamp in green. Pressing the SLEEP switch once again places the server back in the normal mode.

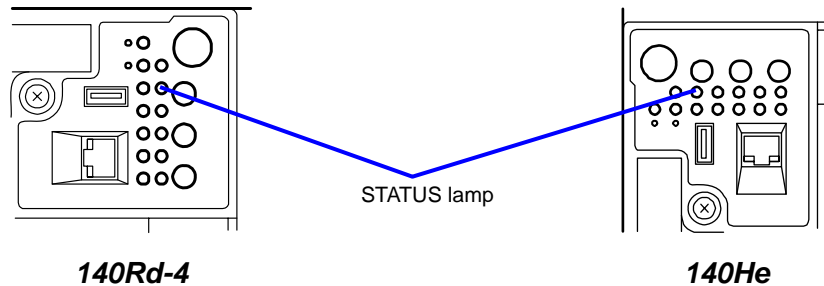
The power-saving mode is only available when the OS supports the power-saving feature such as Windows Server 2003/Windows 2000. Some OS's allow you to set the server to automatically turn in the power-saving mode when no access is made to the server for a certain period of time or to select the power-saving mode with a command.



1.7.2 STATUS Lamp

The STATUS lamp stays lit in green when the server is in successful operation. When the STATUS lamp is unlit, flashing in green or lit/flashing in amber, it indicates that the server has failed.

See Chapter 4 for indications of the STATUS lamp, descriptions, and actions to take.



NOTES:

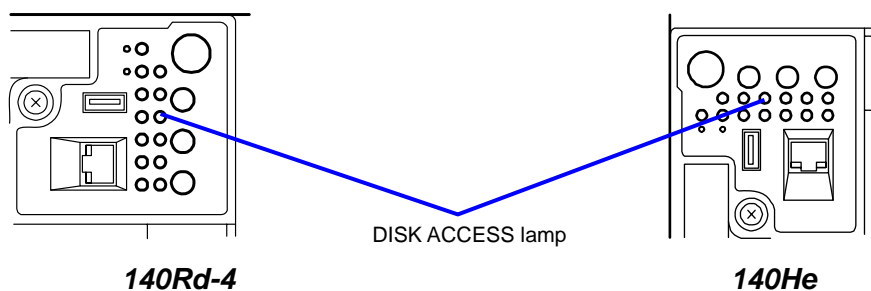
- If the server has the ESMPRO or Off-line Maintenance Utility installed, you can view the System Event Log (SEL) to identify the cause of a trouble.
 - To cycle power to the server, shut down the server from the OS and reboot it, if available. If the shutdown from the OS is unavailable, reset or execute the forced shut down or disconnect and connect the power cord to reboot the server.
-

1.7.3 DISK ACCESS Lamp

The DISK ACCESS lamp indicates the state of hard disk drives in the 3.5-inch disk bay.

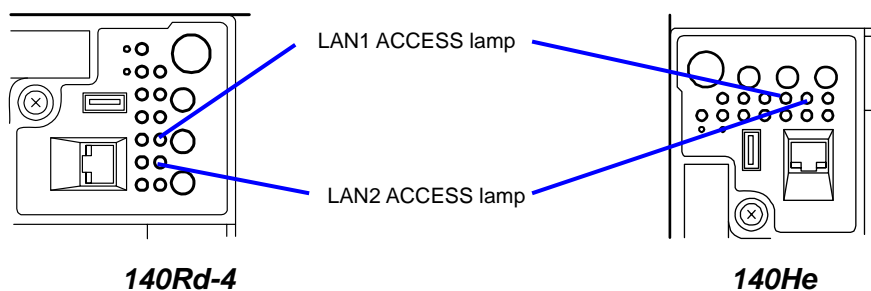
This lamp lights in green every time any of such hard disk drives is accessed.

When the DISK ACCESS lamp is lit in amber, it indicates that a hard disk drive error occurred. To identify a failed hard disk drive, see the lamps provided for each hard disk drive.



1.7.4 LAN1/LAN2 ACCESS Lamp

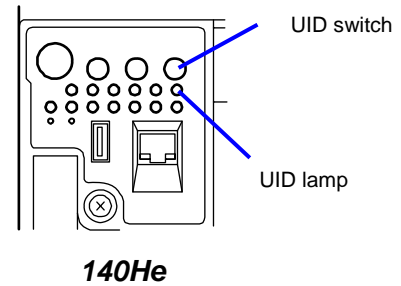
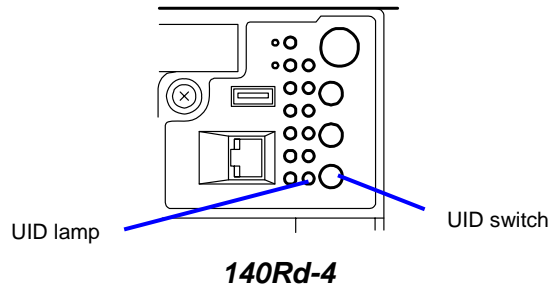
The LAN1/LAN2 ACCESS lamp is lit green when the server is connected to LAN. The lamp blinks while the server is accessed through the LAN (for packet transmission). The value next to the icon indicates the number of the network port on the rear panel.



1.7.5 UID Lamp

Pressing the UID switch on the front panel turns the UID lamp located on the front and rear of the server on. The blue lamp allows you to locate the server you're working on. Use the UID switch when the several servers are installed in the system.

Pressing the UID switch again turns off the UID lamp.



1.7.6 PCI Slot Lamps

PCI Slot Power Lamp

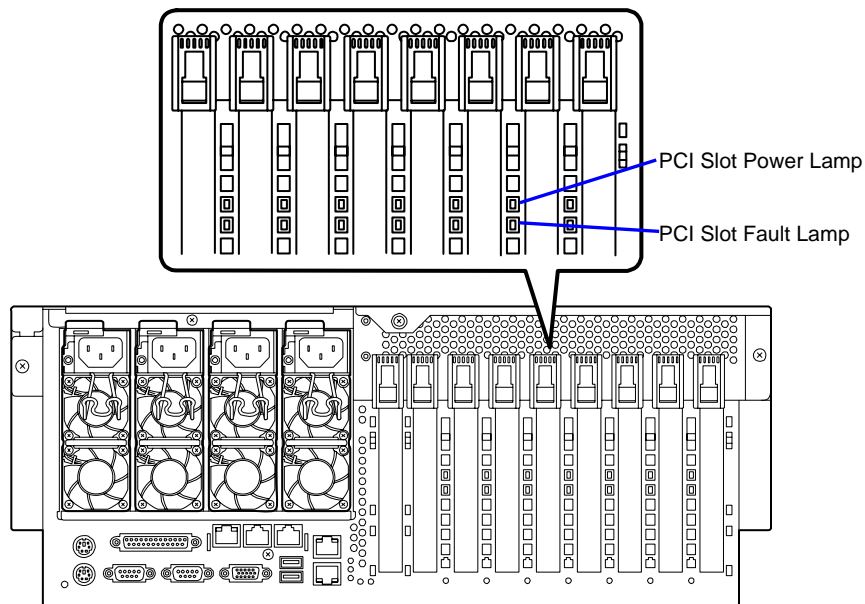
The lamp lights green when the hot-plug PCI slot contains PCI board and the power is supplied to the PCI board. If no PCI board is installed or the power is not supplied to the board, the lamp goes off.

PCI Slot Fault Lamp

If an error occurred on PCI board or the slot installed the PCI board, this lamp lights in amber.

If the driver of a Hot Plug PCI board is stopped by Windows Server 2003/Windows 2000 for Hot Remove or Hot Replace, the PCI slot fault lamp blinks in amber.

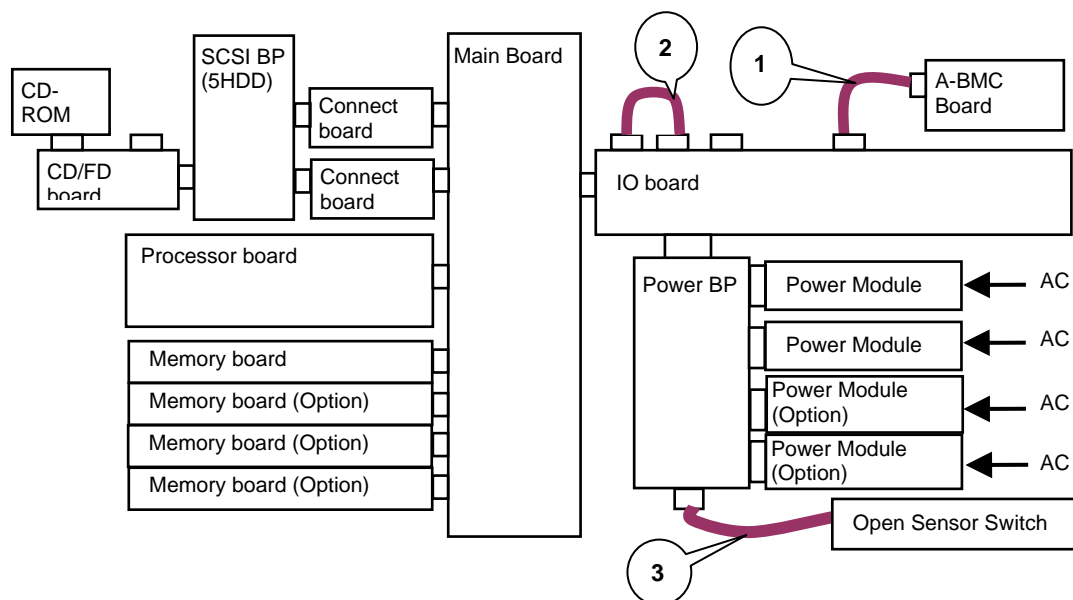
Refer to the User's Guide for PCI hot-plug features.



See Chapter 4 for any other lamps.

1.8 Cable Connection

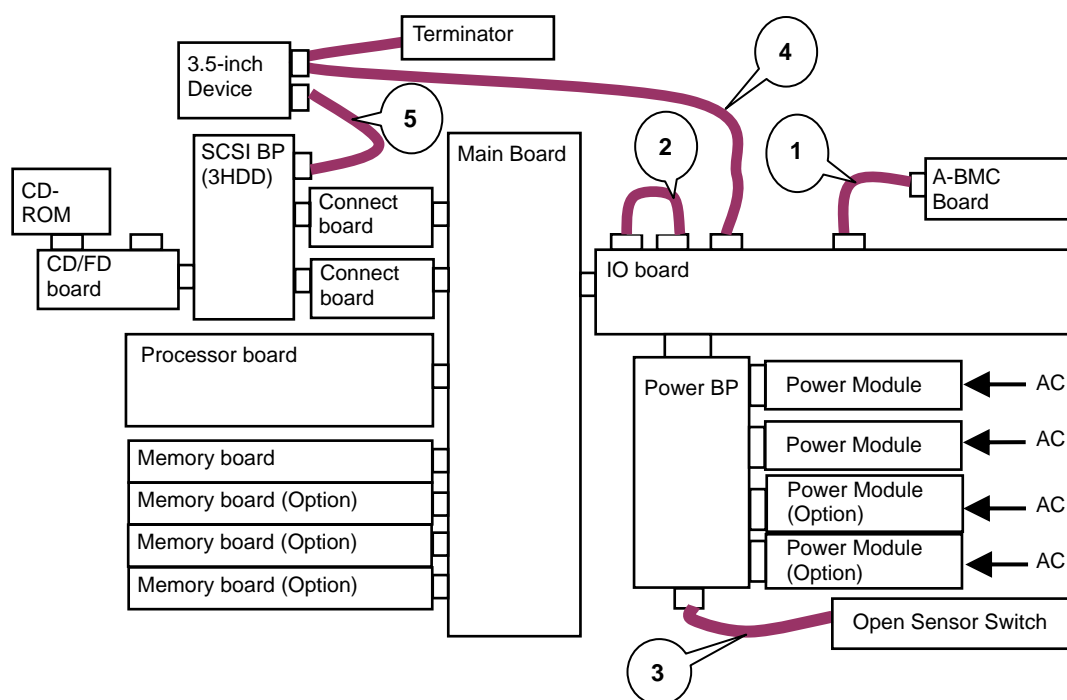
1.8.1 140Rd-4 (Disk-Model)



Cables to be used

	From	To		Cable No
1	IO Board (G7HRH_P24)	A-BMC Board (G7HTR_P1)	Signal	804-063141-0110 A-BMC CABLE (011)
2	IO Board (G7HRH_P4)	IO Board (G7HRH_P5)	Signal (SCSI)	804-063107-5110 ULTRA320M CABLE (511)
3	Power-BP (G7HMM_P6)	Open Sensor Switch	Signal	804-062937-0200 OPEN SENSOR CABLE (020)

1.8.2 140Rd-4 (Device Model)

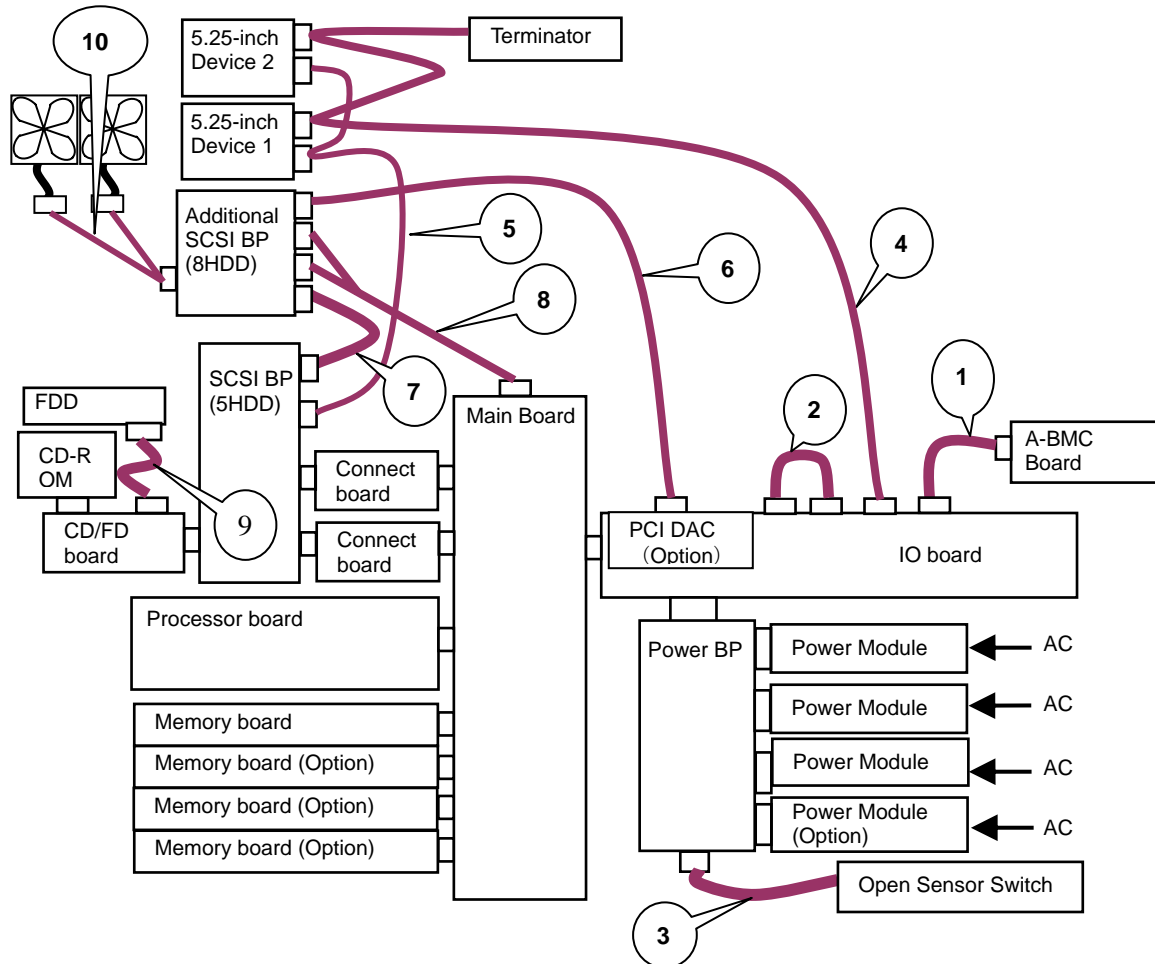


Cables to be used

	From	To		Cable No
1	IO Board (G7HRH_P24)	A-BMC Board (G7HTR_P1)	Signal	804-063141-0110 A-BMC CABLE (011)
2	IO Board (G7HRH_P4)	IO Board (G7HRH_P5)	Signal (SCSI)	804-063107-5110 ULTRA320M CABLE (511)
3	Power-BP (G7HMM_P6)	Open Sensor Switch	Signal	804-062937-0200 OPEN SENSOR CABLE (020)
4	IO Board (G7HRH_P3)	3.5" Device Terminated	Signal (SCSI) Option	804-063223-001 SCSI 3CONN (U320) L1=800
5	SCSI BP (G7HRL_P20)	3.5" Device	Power	804-063224-027 3.5" POWER CABLE (027)

1.8.3 140He (With Additional HDD Cage and 5-inch Device Bay)

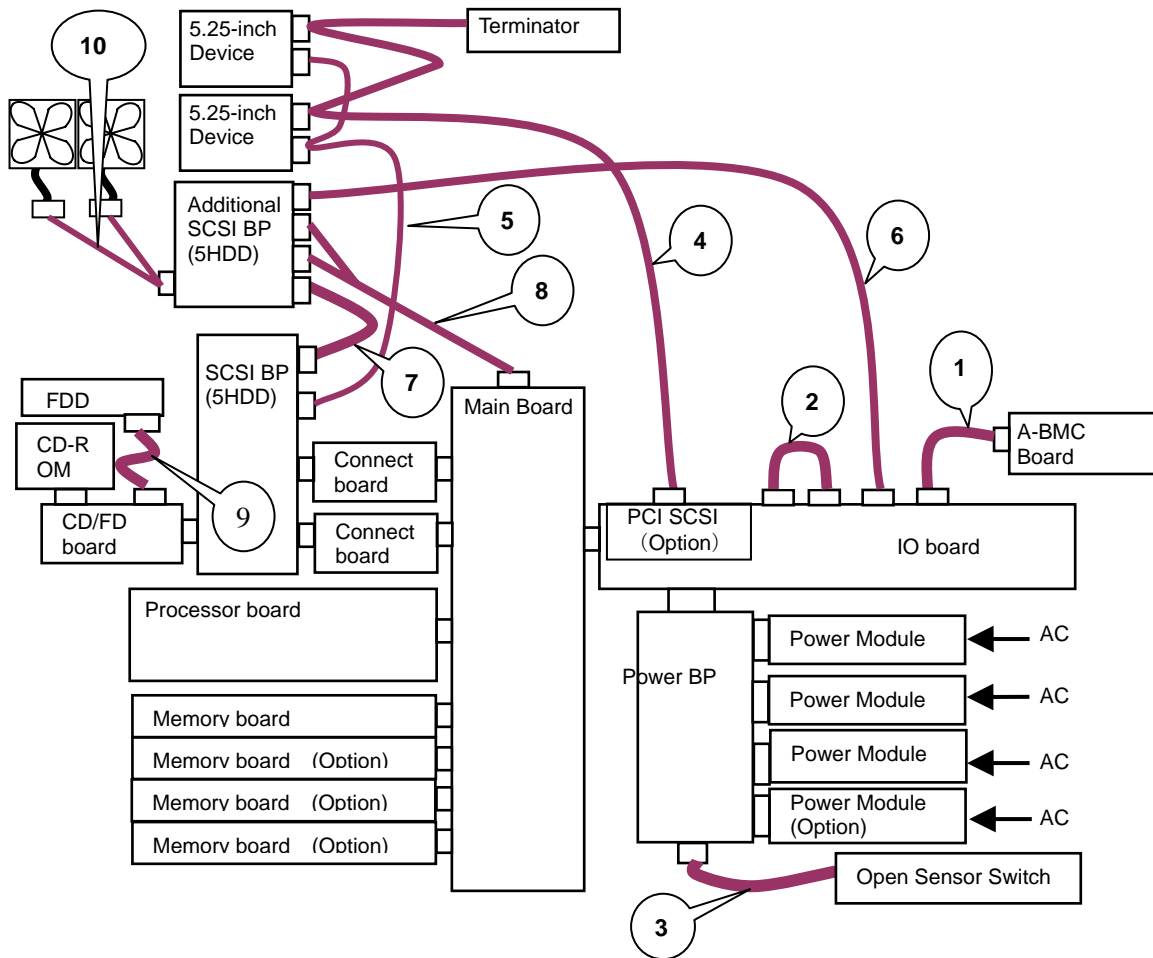
To connect a 5.25-inch device to on-board SCSI controller in I/O board



Cables to be used

	From	To		Cable No
1	IO Board (G7HRH_P24)	A-BMC Board (G7HTR_P1)	Signal	804-063141-0110 A-BMC CABLE (011)
2	IO Board (G7HRH_P4)	IO Board (G7HRH_P5)	Signal (SCSI)	804-063107-5110 ULTRA320MCABLE (511)
3	Power-BP (G7HMM_P6)	Open Sensor Switch	Signal	804-062937-0200 OPEN SENSOR CABLE (020)
4	IO Board (G7HRH_P3)	5" Device 1	Signal (SCSI)	804-063148-003A SCSI 4CONN (U320) L1=1400
		5" Device 2		
		Terminated		
5	SCSI BP (5HDD) (G7HRK_P10, P11)	5" Device 1	Power	804-062935-010-03 5"POWER CABLE (040)
		5" Device 2		
6	SCSI BP (8HDD) (G7HUP_P13)	PCI disk array controller (option)	Signal (SCSI)	804-063107-565 ULTRA320M CABLE (565)
7	SCSI BP (5HDD) (G7HRK_P9)	SCSI BP (8HDD) (G7HUP_P11)	Signal	804-062902-115 BOX-10PIN CABLE
8	Main Board (G7HML_P25)	SCSI BP (8HDD) (G7HUP_P10)	Power	804-063225-001 SCSI BP POWER CABLE (100)
		SCSI BP (8HDD) (G7HUP_P12)		
9	CD/FD Board (G7HMJ_P2)	FDD Drive	Signal (FDD)	8000530000 1.0MM-pitch, 26-conductor, FFC (010)
10	SCSI BP (G7HUP_P9)	FAN Connector 1	Power/Signal (FAN I/F)	804-063226-000 FAN CABLE
		FAN Connector 2		

To connect a SCSI cage to on-board SCSI controller in I/O board



Cables to be used

	From	To		Cable No
1	IO Board (G7HRH_P24)	A-BMC Board (G7HTR_P1)	Signal	804-063141-0110 A-BMC CABLE (011)
2	IO Board (G7HRH_P4)	IO Board (G7HRH_P5)	Signal (SCSI)	804-063107-5110 ULTRA320M CABLE (511)
3	Power-BP (G7HMM_P6)	Open Sensor Switch	Signal	804-062937-200 OPEN SENSOR CABLE (020)
4	PCI SCSI board (Option)	5" Device 1	Signal (SCSI)	804-063148-003A SCSI 4CONN (U320) L1=1400
		5" Device 2		
		Terminated		
5	SCSI BP (5HDD) (G7HRK_P10, P11)	5" Device 1	Power	804-062935-010-03 5"POWER CABLE (040)
		5" Device 2		
6	SCSI BP (8HDD) (G7HUP_P13)	IO Board (G7HRH_P3)	Signal (SCSI)	804-063107-565 ULTRA320M CABLE (565)
7	SCSI BP (5HDD) (G7HRK_P9)	SCSI BP (8HDD) (G7HUP_P11)	Signal	804-062902-115 BOX-10PIN CABLE
8	Main Board (G7HML_P25)	SCSI BP (8HDD) (G7HUP_P10)	Power	804-063225-001 SCSI BP POWER CABLE (100)
		SCSI BP (8HDD) (G7HUP_P12)		
9	CD/FD Board (G7HMJ_P2)	FDD Drive	Signal (FDD)	8000530000 1.0MM-pitch, 26-conductor, FFC (010)
10	SCSI BP (G7HUP_P9)	FAN Connector 1	Power/Signal (FAN I/F)	804-063226-000 FAN CABLE
		FAN Connector 2		

1.9 Criteria for Installation

1.9.1 Gibson-C/140Rd-4,Gibson-P/140Rd-4,Gibson-Px


Major classification	Minor classification	Standard	Remarks
Input power	Power source	Single-phase bipolar with ground terminal	
	Voltage	100-127 Vac \pm 10% 200-240 Vac \pm 10%	
	Frequency	50Hz \pm 1Hz or 60Hz \pm 1Hz	
	Waveform distortion	10%	
Power consumption	Input current	12A / 6A	
	Apparent current	1200VA (Max.)	
	Active current	1176W (Max.)	
	Rush current		
	Power factor	98%	
Environmental conditions	Temperature	10 to 35°C	No condensation
	Humidity	20 to 80%RH	

1.9.2 Gibson-C/140He,Gibson-P/140He,Gibson/140He

Major classification	Minor classification	Standard	Remarks
Input power	Power source	Single-phase bipolar with ground terminal	
	Voltage	100-127 Vac \pm 10% 200-240 Vac \pm 10%	
	Frequency	50Hz \pm 1Hz or 60Hz \pm 1Hz	
	Waveform distortion	10%	
Power consumption	Input current	18A (Max.) / 9A (Max.)	
	Apparent current	1800VA (Max.)	
	Active current	1764W (Max.)	
	Rush current		
	Power factor	98%	
Environmental conditions	Temperature	10 to 35°C	No condensation
	Humidity	20 to 80%RH	

2. Installation, Removal or Pull-out of Server from Rack

See "Installation of Server on Rack" in the User's Guide.

 CAUTION	
	<p>At least three persons are required to install or remove the server to/from the rack to prevent a personal injury due to falling server.</p> <p>The server weighs approximately 36 kg (47 kg at the maximum).</p>

3. Installation or Removal of Option from Server

For the installation or removal of an option from the Server, see "Installation of Option in Server" in the User's Guide and the manual coming with the option.

4. Maintenance and Replacement

4.1 Basic Idea of Maintenance

- If a fault occurs during system operation, always acquire the dump if possible (by trying to acquire the dump actually).
- If the dump can be acquired, issue the difficulty through the appropriate route to request the detailed analysis.
- The server is normally equipped with the A-BMC (Advanced Baseboard Management Controller).

The proper arrangement of the A-BMC connection environment enables remote management (maintenance) to be done.

Refer to the User's Guide for details.

- At the occurrence of a hardware error, the new feature of the Server can indicate the defected location by lighting the proper one of the lamps installed on the front of the Server or boards. (See Section 4.3 for details.)

The feature allows the defected location to be identified definitely.

4.2 Routine Maintenance

The table below lists the routine maintenance items.

No	Working item	Period	Remarks
1	Cleaning of fans and inlets	1 year	
2	Check by T&D	1 year	Use of maintenance T&D (TeDoLi)
3	Check of catches of switches	1 year	
4	Replacement of battery for onboard RAID	2 years	2 years or 500 charges, which is earlier

The battery for onboard RAID is maintenance parts for a fee.

If any other option is added to the Server, follow the routine maintenance procedures of the option.

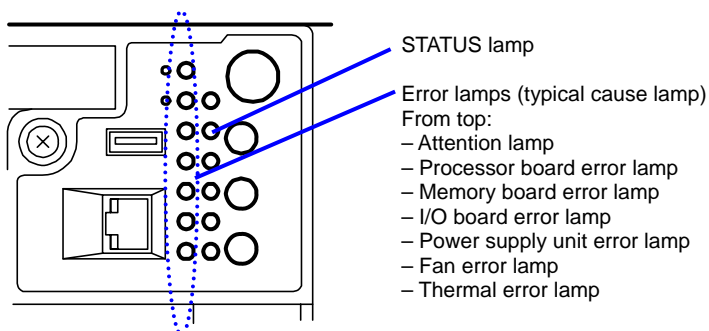
4.3 Indication of Defected Devices with Lamps

The Server is equipped with lamps on the front panel and boards to support the indication of defected devices.

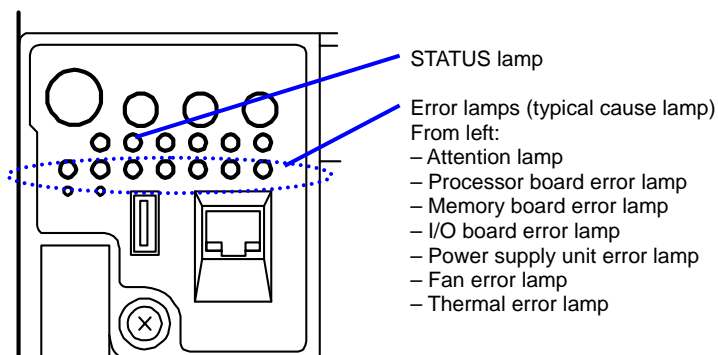
If an error occurs, any of the Status and error (typical cause) lamps on the front panel and error (detailed cause) lamps installed on boards light or blink to indicate the device or location at which the error occurs.

The Status and error lamps except the fan error lamps can remain lit if the DC power is turned off.

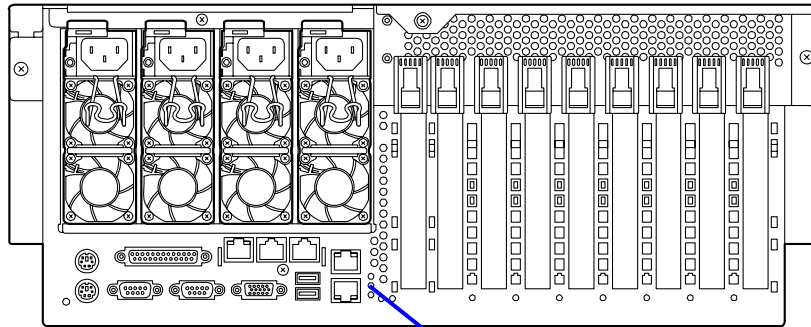
Front Panel (140Rd-4)



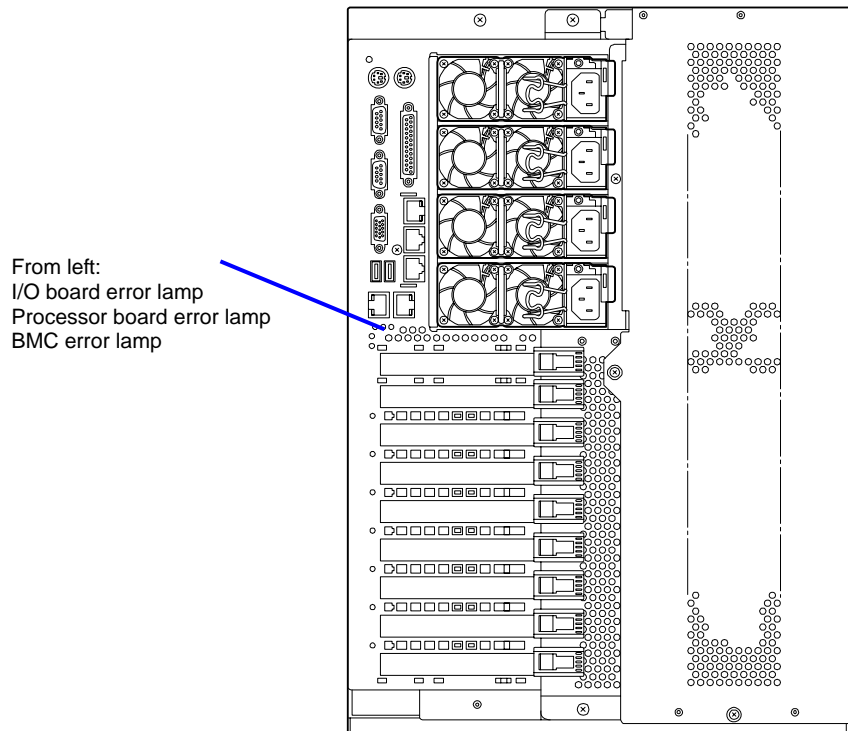
Front Panel (140He)



* Among the typical cause lamps, the I/O Board error and Processor Board error lamps are installed on the rear face of the Server. The BMC error lamp, or a detailed cause lamp, is also installed on the rear face of the Server.



From top:
I/O board error lamp
Processor board error lamp
BMC error lamp



From left:
I/O board error lamp
Processor board error lamp
BMC error lamp

4.3.1 Status Lamp

In the normal operation status, the Status lamp lights green.

If an error occurs, the Status lamp operates as follows depending on error types:

- Blinking green,
- Going off,
- Lighting amber, or
- Blinking amber.

The meaning of the lamp behavior in each state is described below.

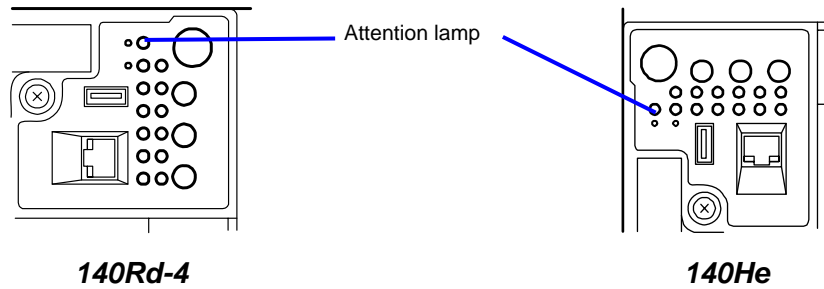
STATUS lamp indication	Description	Action
Lit green	The server is operating normally.	–
Flashing green	The server is in operation with its processor or memory degraded.	Check lamp indications on front panel. Start the BIOS SETUP and select [Main] - [Processor Settings] to identify the degraded processor and replace it as soon as possible.
	A memory 1-bit error frequently occurs.	
Unlit	The server is off-powered.	Power on the server.
	POST is in progress.	Wait for a while. The STATUS lamp will light in a few seconds after POST completion.
	A processor error occurred (IERR).	Cycle power to the server. If POST displays an error message, take a note on the message and take an appropriate measure including parts replacement.
	A processor thermal error was detected. (Thermal-Trip)	
	A watchdog timer has timed out.	
	An uncorrectable memory error was detected.	
	A PCI system error occurred.	
	A PCI parity error occurred.	
	A processor bus error was detected.	
	Memory dumping is requested.	Wait until memory dumping completes.
Lit amber	A thermal error (critical) was detected.	Check internal fans for dust or debris. Also make sure that the fans are firmly connected. If this error indication persists, replace the fan.
	A voltage error (critical) was detected.	
	All the power supplies failed to operate.	Replace the possibly faulty package.
Flashing amber	A power alarm was detected in a power supply unit.	Replace the power supply unit.
	A fan alarm was detected.	Make sure that the fan units are firmly connected. If this error indication persists, replace the fan.
	A thermal error (warning) was detected.	Check internal fans for dust or debris. Also make sure that the fans are firmly connected. If this error indication persists, replace the fan.

	A voltage error (warning) was detected.	Replace the possibly faulty package.
--	-----------------------------------------	--------------------------------------

4.3.2 Attention Lamp

If the defected location cannot be identified automatically or several errors occur at more than one location, the Attention lamp goes on amber. (The lamp is off in the normal operation status.)

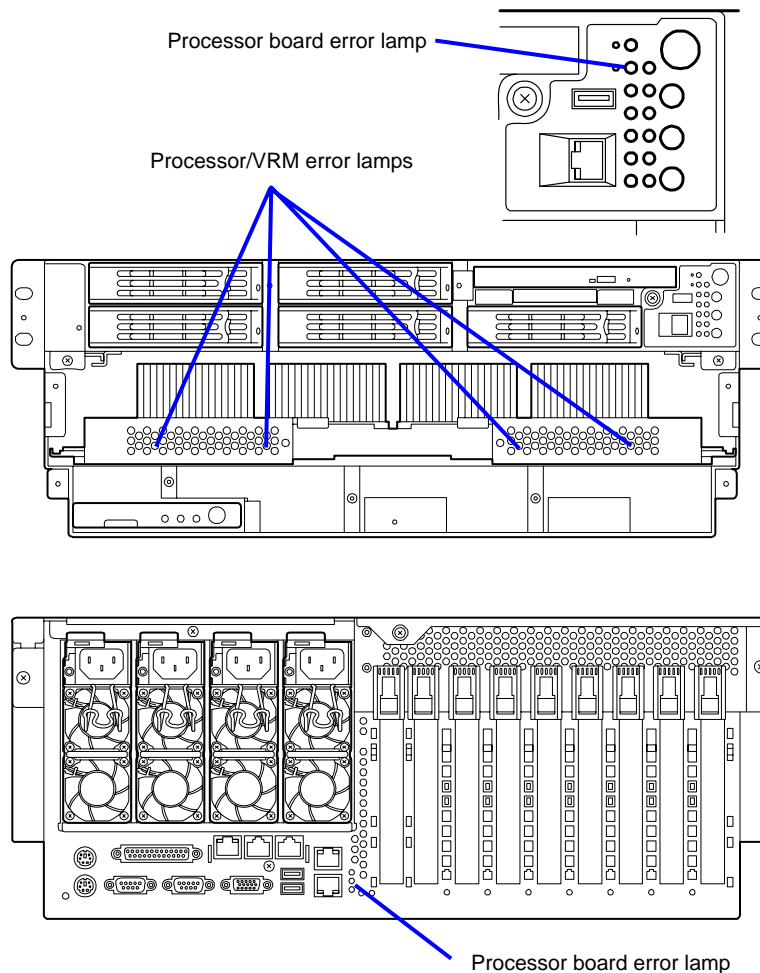
If the lamp lights, check the log to identify the locations at which the errors occur.

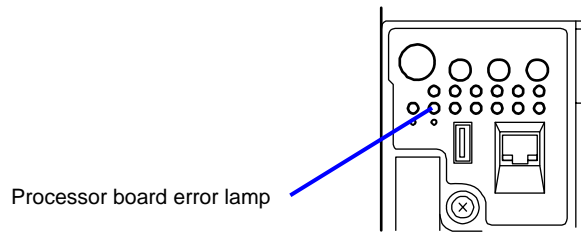


4.3.3 Processor Board Error Lamp

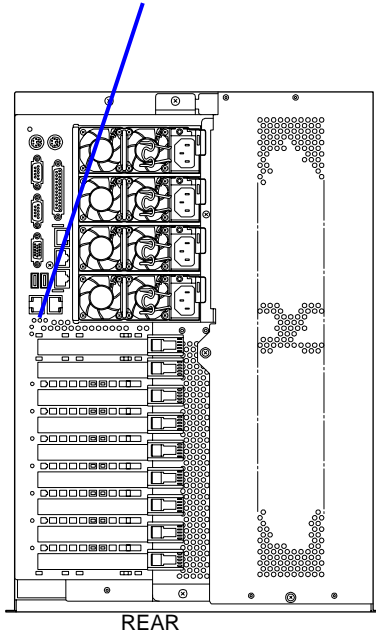
The Processor Board Error lamp is installed on each of the front and rear faces of the Server. The lamp lights amber when the Processor Board is defected. (The lamp is off in the normal operation status.)

When the lamp goes on, check the status of the Processor/VRM Error lamps. If any of the four lamps lights, it means an error has occurred on the corresponding processor or VRM.

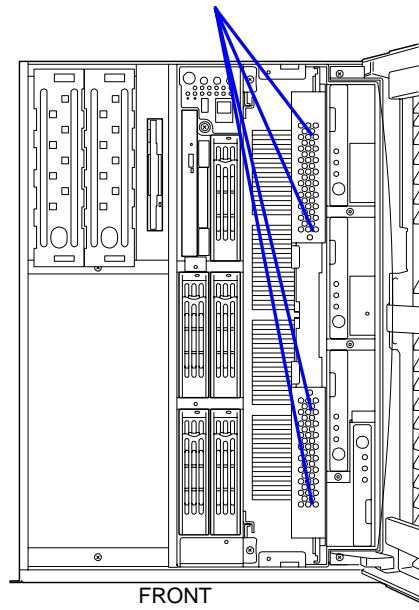




Processor board error lamp



Processor/VRM error lamps



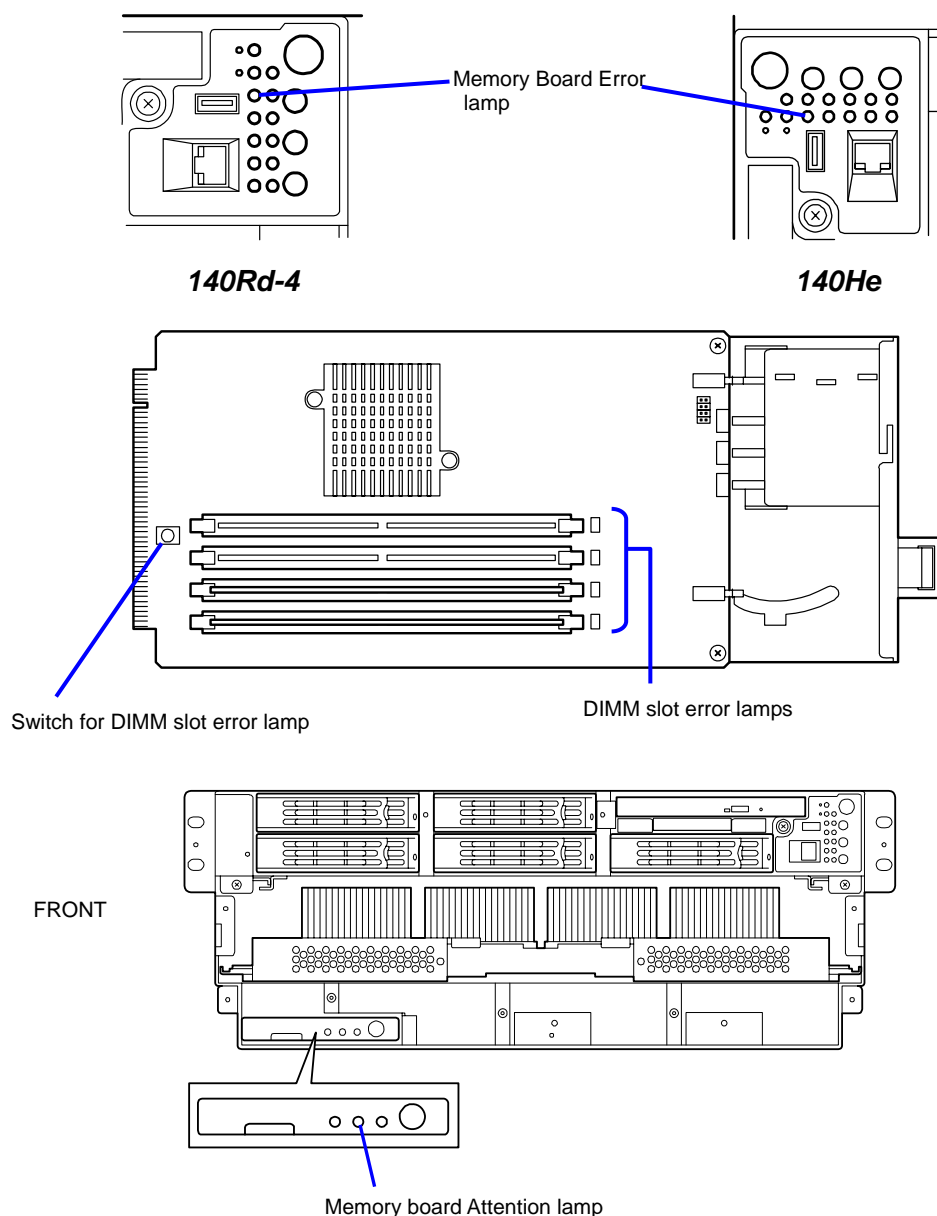
4.3.4 Memory Board Error Lamp

The Memory Board Error lamp lights amber if an error occurs on any of the Memory Board or any of the DIMMs installed on a board. (The lamp is off in the normal operation status.)

Check the Attention lamps on the Memory Boards to identify the defected Memory Board. Further, pressing the DIMM slot error lamp ON switch on the defected Memory Board allows the relevant DIMM Slot Error Lamp to go on to identify the slot having the defected DIMM.

Before pressing the DIMM slot error lamp ON switch, remove the Memory Board from the Server.

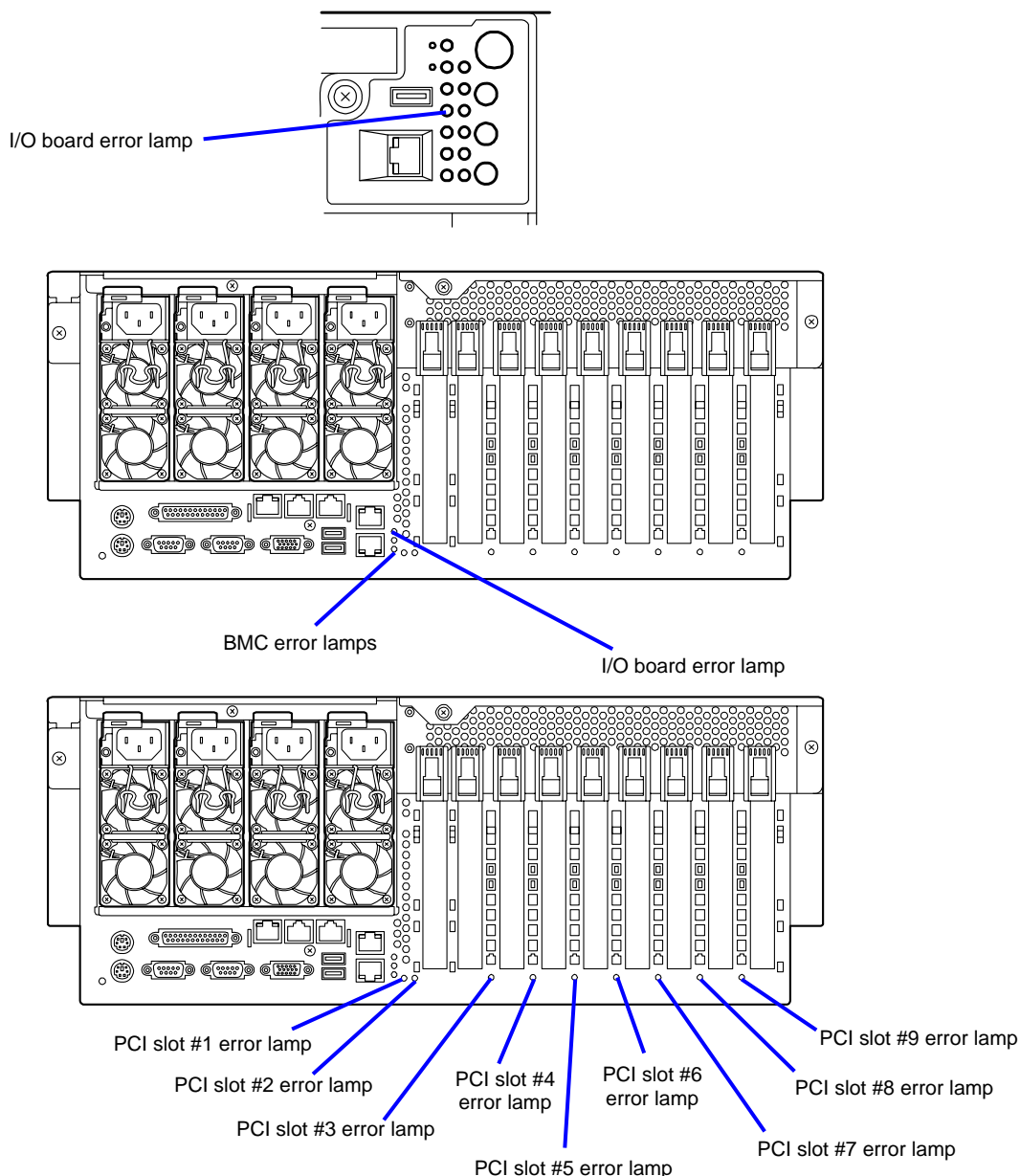
If the Memory Board is removed from the Server, pressing the DIMM slot error lamp ON switch allows the relevant SIMM Slot Error lamp to go on.

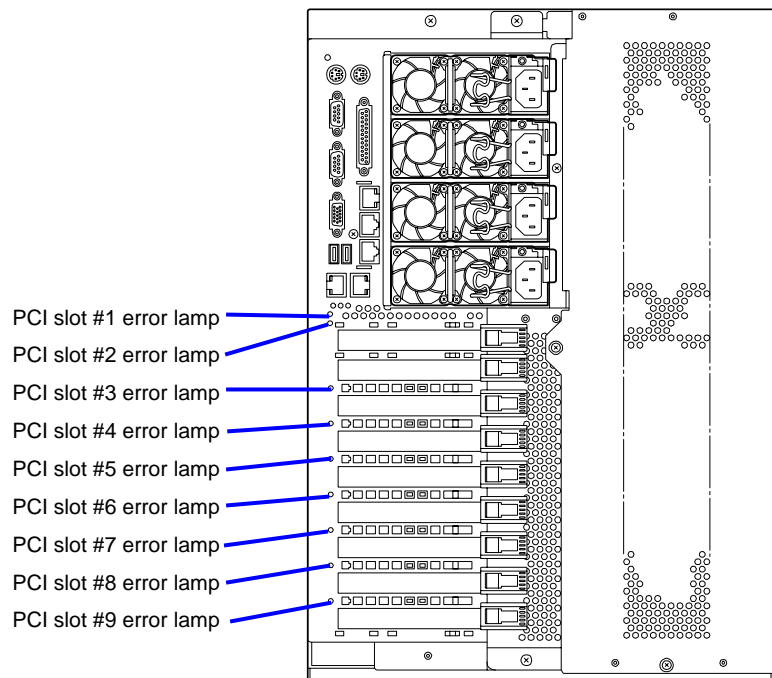
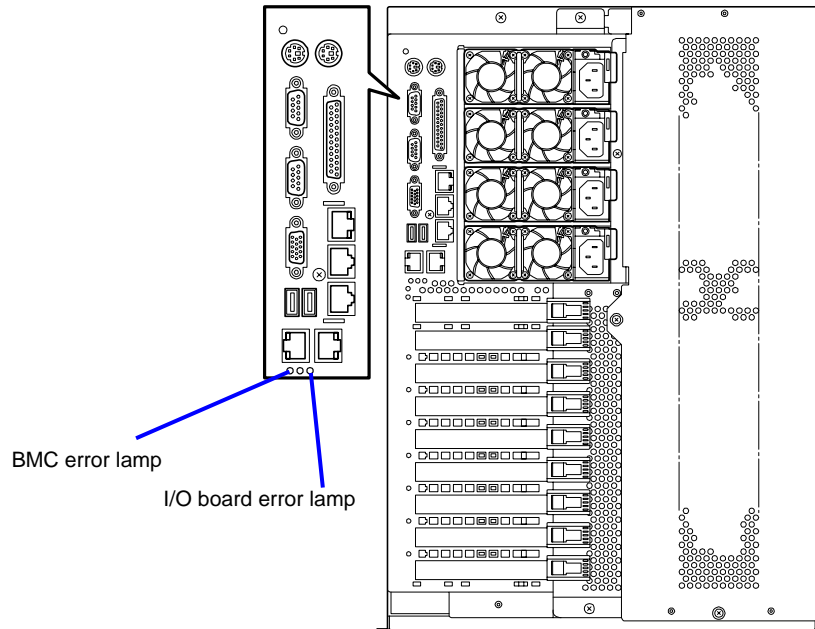
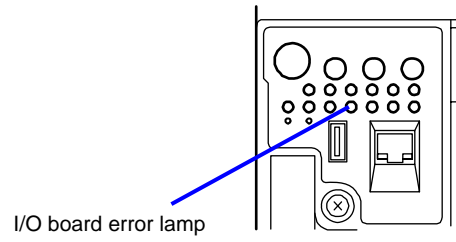


4.3.5 I/O Board Error Lamp

The I/O Board Error lamp is installed on each of the front and rear faces of the Server. The lamp goes on amber if an error occurs on the I/O Board. (The lamp is off in the normal operation status.)

When the lamp on the front face of the Server goes on amber, check the BMC Error and PCI Slot Error lamps on the rear face of the Server. If the BMC Error lamp lights amber, replace the I/O Board. If any of the PCI Error lamps lights amber, replace the PCI Board inserted to the slot having the lamp being on. If the error lamp lights amber again in spite of clearing the lamp after the replacement, replace the I/O Board.





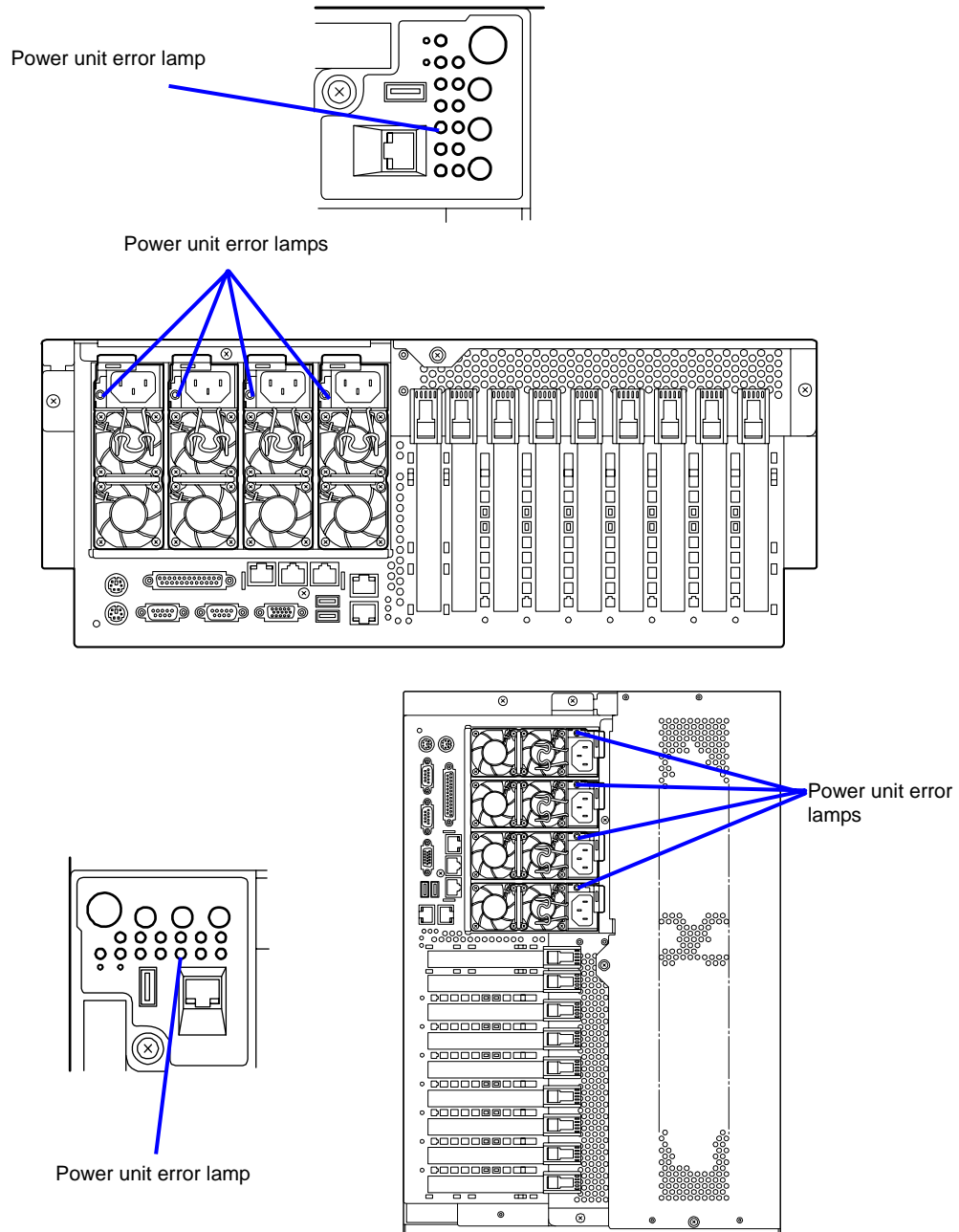
4.3.6 Power Unit Error Lamp

The Power Unit Error lamp goes on amber when an error occurs in any of the power units.

Check the status of the power unit lamps. If the lamp on any of the power units lights amber, an error occurs in the corresponding power unit. Replace the power unit.

The Power Unit Error lamp is off in the normal operation status.

In the normal operation status, the Power Unit lamp blinks green if a power cable is connected to the power unit and lights green if the power of the Server is turned on.

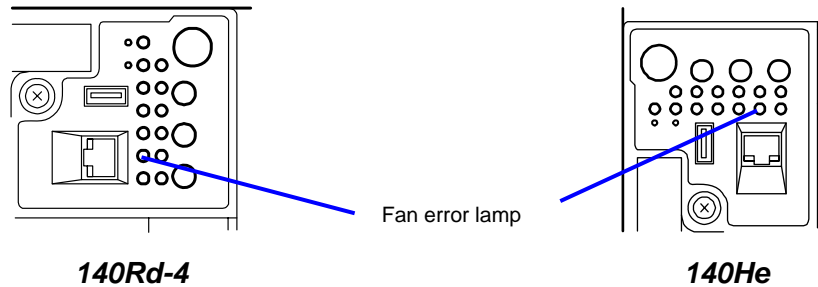


4.3.7 Fan Error Lamp

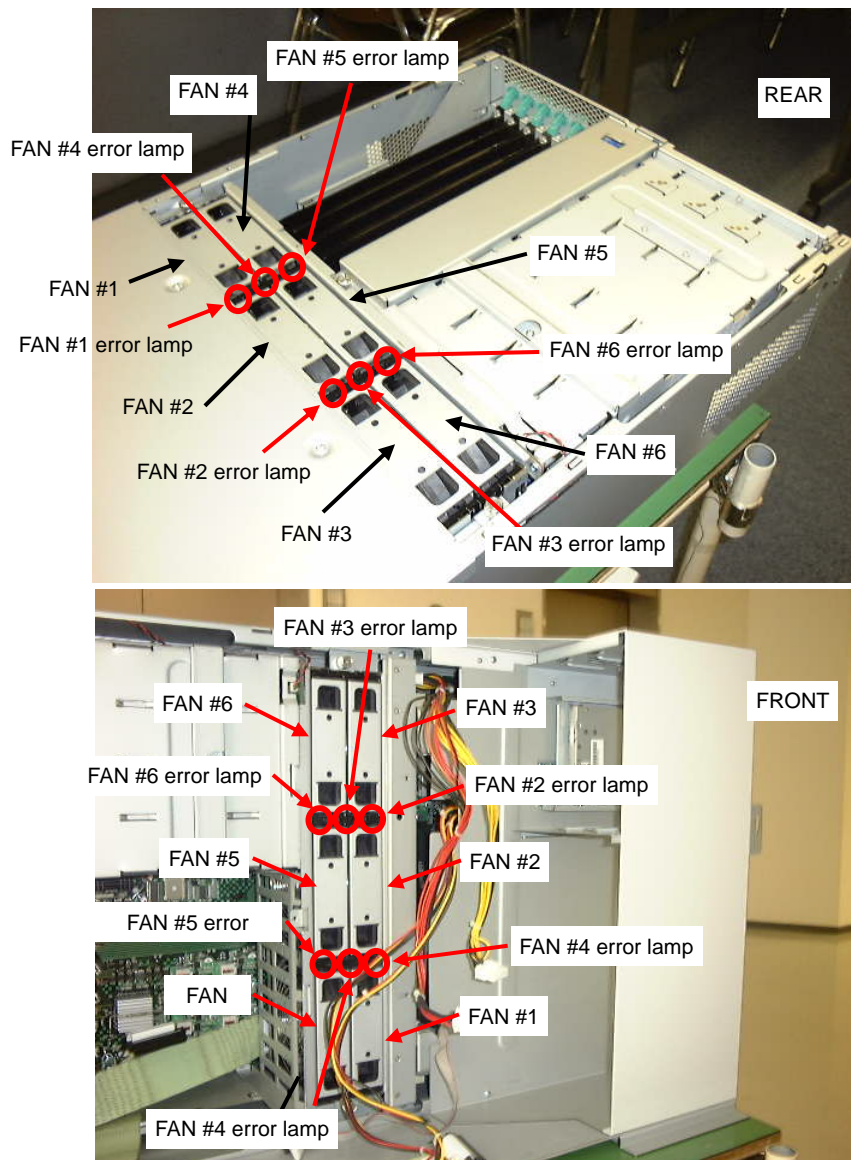
The Fan Error lamp lights amber when any of the fans is defective. (The lamp is off in the normal operation status.)

Check the Fan Error lamps within the Server to identify the defective fan.

When a fan error or a temperature error in the Server is detected, the Status lamp also lights or blinks amber. The covers must be removed to check the Fan Error lamps within the Server or replace the defective fan. See Chapter 4 for details.



The Fan Error lamps in the Server are located as shown in the figure below.

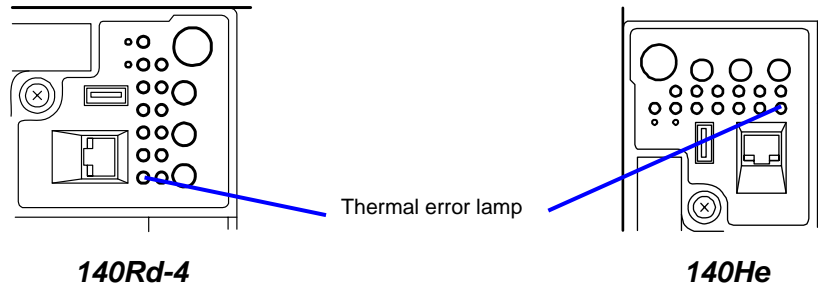


4.3.8 Temperature Error Lamp

When the temperature in the Server exceeds the normal operation range, the Temperature Error lamp goes on. (The lamp is off in the normal operation status.)

Check the room temperature in the area in which the Server is installed.

When the fan unit temperature error is detected, the Status lamp also lights or blinks amber.



4.3.9 Clearing Lamp Indication

An error indication can be cleared in any of the following ways, which vary depending on the types of errors occurred.

Any error indication should be cleared after the cause of the error is removed.

- Press the Clear switch on the front panel to restart the Server.
- Select [Server]→[Clear FRU LED] in the BIOS SETUP and choose "YES" to restart the Server.
- At the occurrence of a processor error, select [MAIN]→[Processor Setting]→[Processor Retest] in the BIOS SETUP and choose "YES" to restart the Server.
- At the occurrence of a memory error, select [MAIN]→[Processor Setting]→[Processor Retest] in the BIOS SETUP and choose "YES" to restart the Server.

NOTES:

- Use this feature to find suspicious devices; if several devices indicate errors because of one defected device, this should help you find the device that caused the initial error.
 - Also use a proper tool including the Offline Maintenance Utility to identify the suspicious device.
-

4.4 Off-line Maintenance Utility

The Offline Maintenance Utility can be started in various ways.

While the Offline Maintenance Utility can be started manually, it may be started automatically at the occurrence of an error.

4.4.1 Starting Off-line Maintenance Utility

Refer to the User's Guide for details of starting the Offline Maintenance Utility.

Starting the Offline Maintenance Utility allows the following features to be executed:

Indicating IPMI information

The feature indicates or backs up the system event log (SEL), sensor device report (SDR), and/or maintenance/replacement device information (FRU) in IPMI.

This feature allows faults and events occurring in the system to be examined to identify the device which should be replaced.

Indicating BIOS setup information

The feature indicates the current BIOS setting values or outputs the values to a text file.

Indicating system information

The feature indicates the information on the processor and/or BIOS or outputs the information to a text file.

Managing system information

The feature backs up (saves) the information and/or settings specific for the customer system. Without the backup, the information and/or settings specific for the customer system cannot be recovered in the repair or replacement of a board.

However, the system information includes information allowed to be backed up, that disabled to be backed up, and that requiring no backup.

The information disabled to be backed up is applied by the default setting at the shipment from the factory in the replacement of a base board. Accordingly, always check the information before the replacement and recover it manually after the replacement.

- Information allowed to be backed up
 - Product information of FRU information (including model name, N part number, FR, and serial number of main unit)
 - Chassis information of FRU information (including chassis specification number)
 - Setting data of BIOS SETUP (excluding AC LINK of BIOS SETUP)
 - Setting data of BMC and RomPilot
- Information disabled to be backed up
 - Setting onboard RAID

The onboard RAID setting information can be backed up by using [RAID Configuration Save/restore] in the Tool Menu of EXPRESBUILDER or PowerConsolePlus, management software on OS. Refer to the User's Guide or the online documentation of PowerConsolePlus found in EXPRESBUILDER
 - Settings on option boards
 - Setting of AC LINK in BIOS SETUP
- Information requiring no backup
 - PKG information of FRU information (including specification number, COMP, and serial number)
 - MAC address of onboard LAN

Starting several utilities

The following utilities installed in the maintenance partition can be started by EXPRESSBUILDER:

- System management
- System diagnosis
- Setting maintenance partition

Chassis recognition

Making the UID lamp on the front panel of the Server blink.

Allowing the Server subject to maintenance to be identified. Use the feature when more than one server are installed.

4.5 Fault Repair and Troubleshooting

If a fault occurs during system operation, always acquire the dump if possible (by trying to acquire the dump actually).

If the dump can be acquired, issue the difficulty through the appropriate route to request the detailed analysis.

For troubleshooting, basically execute the POST and T&D program to check whether a hardware error occurs or not. Then any error indication appears on the display.

Figure 4.1 shows the flow of the troubleshooting based on the POST and T&D program.

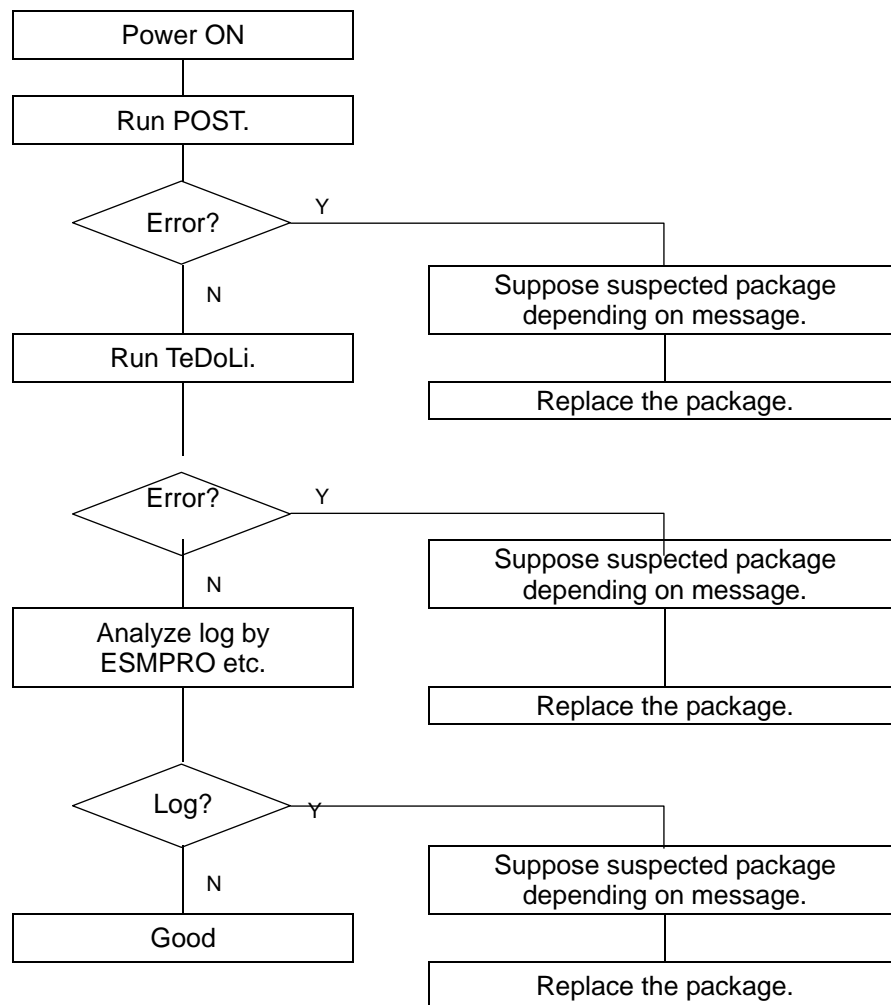


Figure 4.1 Troubleshooting flow

4.6 Dump Acquisition

The dump can be acquired by pressing the dump switch on the front of the Server. The destination of the dump is the boot device. Note that the dump may not be acquired due to OS setting.

NOTE: If the dump switch is pressed once, it will be masked until the DC power is turned off. Thus, always turn off the DC power after dump acquisition.

4.7 POST Execution

The POST is executed at the power-on or reset operation. If an error occurs, the relevant error message appears on the display. See Chapter 8 for the error messages.

4.8 TeDoLi Execution

Insert the attached EXPRESSBUILDER in the CD-ROM drive to start it and select the system diagnosis from the menu to start TeDoLi. Then perform proper operations following the menus appearing on the display.



NOTE: Always disconnect the LAN cable from the Server before executing the system diagnosis because it may have bad influences on the network.



4.9 Device Replacement (1)

This section describes the procedures of replacing maintenance devices. After a device is replaced, turn on the power of the Server and run the test program to confirm that the Server operates normally.

Refer to the User's guide for how to install or remove maintenance devices.

IMPORTANT: If the hardware configuration is modified, always provide the system update.

 WARNING	
	<p>Observe the following instructions to work with the server safely.</p> <ul style="list-style-type: none">• Do not look into the CD-ROM drive.• Disconnect the power plug before working with the server.• Do not remove the lithium, Ni-CD, and/or NiMH battery unnecessarily.

 CAUTION	
	<p>Observe the following instructions to work with the server safely.</p> <ul style="list-style-type: none">• Do not lift the server by yourself.• Make sure to complete installation.• Do not install or remove the component with the cover being attached.• High temperature

4.9.1 Preparation before Replacement

Prepare the following before a device replacement:

- Take proper measures against static electricity including wearing of a wrist strap.
- Shut down OS and turn of the DC power.
- Disconnect the AC cables from the power units for the AC power-off.
- Disconnect all the cables from their mating connectors on the front and rear faces of the unit.
- Make 1 - 2-meter working space at the front, back, left, right, and top of the unit.

4.9.2 Replacement of Hard Disk, Power Unit, 3.5-inch Device, or 5-inch Device

Refer to the User's Guide for how to replace the hard disk, power unit, 3.5-inch device or 5-inch device.

4.9.3 Replacement of Memory Board or DIMM

The Server supports the online spare memory, memory mirroring, and memory RAID configuration features as well as the normal memory configuration. For the setups and notes on the features, refer to the User's Guide.

Also, refer to the User's Guide for the addition of a Memory Board or DIMM to the Server.

In the redundant memory configuration (memory mirroring or memory RAID configuration), the Memory Board can be removed for DIMM replacement while the power of the Server remains ON (hot-pluggable).

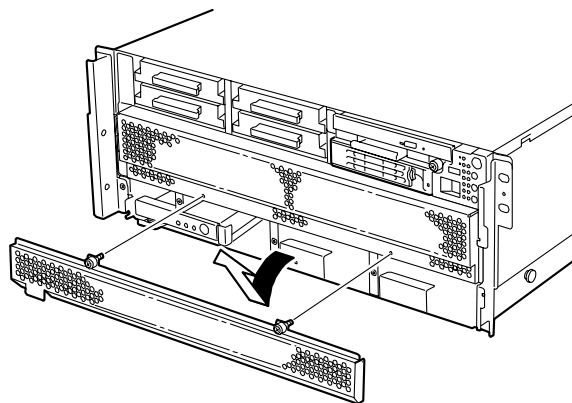
The following describes how to replace a Memory Board or DIMM in the normal or hot-pluggable configuration:

In the redundant memory configuration, the Redundancy lamp on the Memory Board goes on green when the power of the Server is turned on.

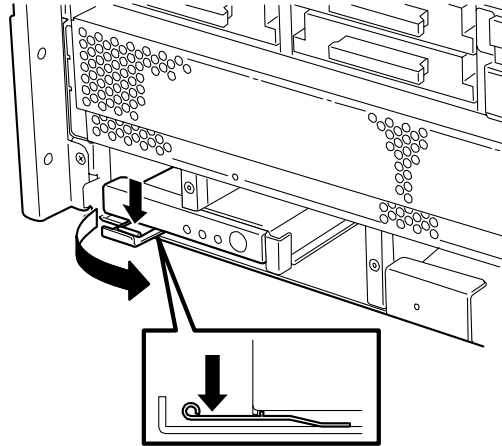
The figure shows the Server mounted on the 140Rd-4 chassis. The Server on the 140He chassis is different only in that it is mounted longitudinally. The replacement procedure is the same for both servers, except when specified otherwise.

[Replacement in normal configuration]

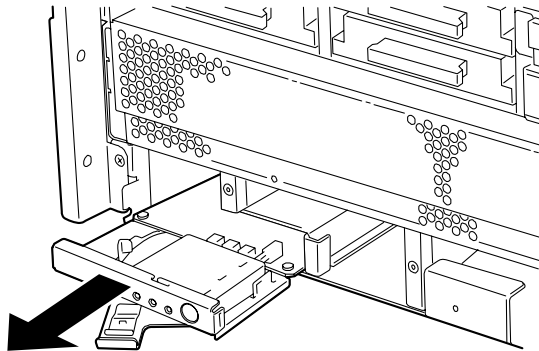
1. Make sure that the power of the Server is set to OFF and disconnect the power cables from all the power units.
2. Release the lock on the front bezel by using the security key to remove the front bezel.
3. Remove the memory slot cover on the front of the Server (by removing the two captive screws).



4. Release the lock of the ejectors and open them.



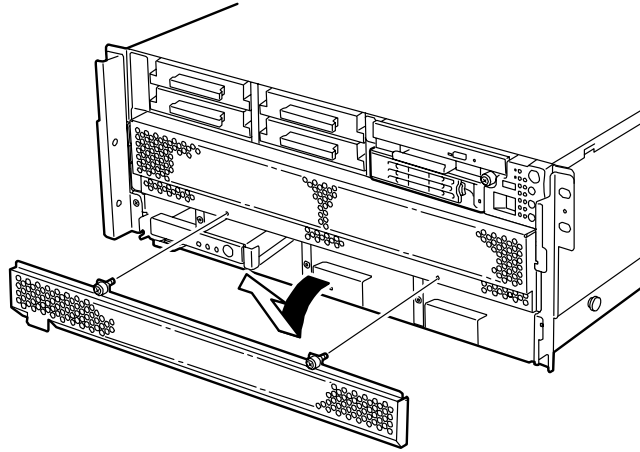
5. Hold the ejectors and pull out the Memory Board from the Server.



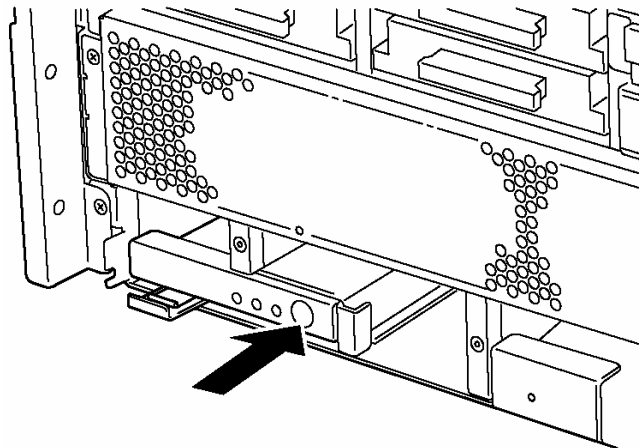
6. To replace a DIMM, remove it from the Memory Board.
7. Do the reverse procedure for the installation.

[Replacement in hot-pluggable configuration]

1. Release the lock on the front bezel by using the security key to remove the front bezel.
2. Remove the memory slot cover on the front of the Server (by removing the two captive screws).



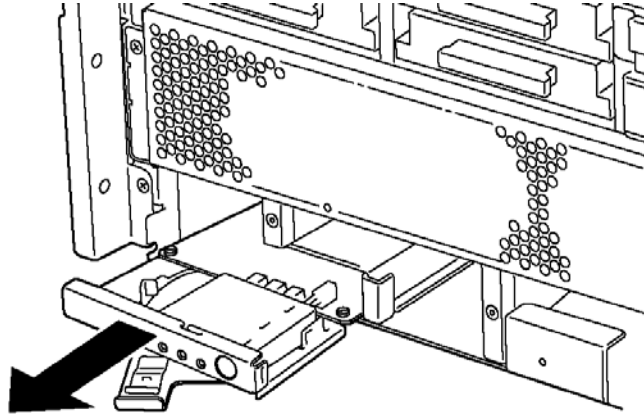
3. Press the Attention button on the Memory Board in which an error occurs (with the Attention lamp lighting amber). The Power lamp on the Memory Board goes off.



4. Wait a few minutes for the board to cool down, and pull out the Memory Board from the Server.

When the button switch for DIMM slot error lamp is pushed, parts of the error can be specified.

We recommend you wait for a few minutes after the Power lamp goes off because any Memory Board is heated excessively during power distribution.



5. Replace the Memory Board or DIMM and install the new or modified Memory Board in the Server.

6. Press the Attention button on the installed Memory Board.

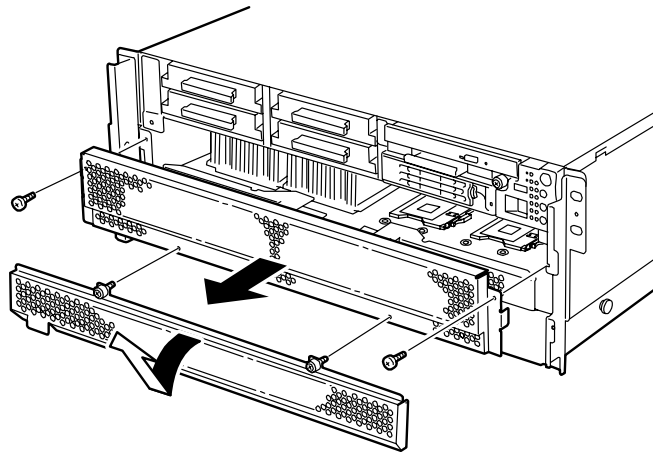
The Power lamp on the Memory Board blinks green and goes on after a while.

7. Install the memory slot cover and the front bezel.

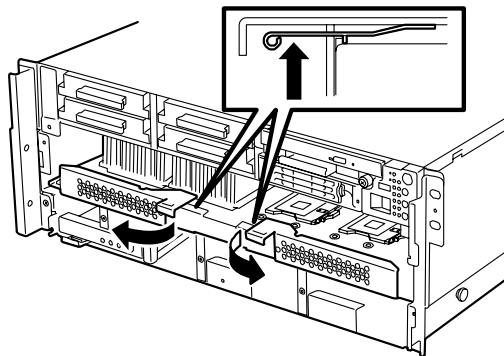
4.9.4 Replacement of Processor Board, Processor, Heat Sink or VRM

The figure shows the Server mounted on the 140Rd-4 chassis. The Server on the 140He chassis is different only in that it is mounted longitudinally. The replacement procedure is the same for both servers except when specified otherwise.

1. Release the lock on the front bezel by using the security key to remove the front bezel.
2. Remove the memory slot cover on the front of the Server (by removing the two captive screws).
3. Remove the processor slot cover (by removing 2 screws.)

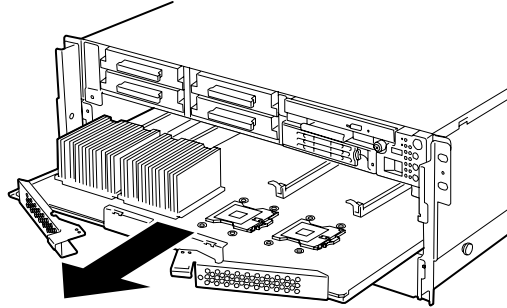


4. Release the lock and open the left and right ejectors together.



5. Hold the processor board securely with both hands to remove it from the Server.

Take special care for the processor board because it is considerably heavy. Hold the bottom of the board with both hands.



6. Remove the processor, heat sink, or VRM from the board. See the descriptions below for the removal procedures.
7. To replace the processor board, remove it from the processor board tray (by removing the 12 screws).
8. Do the reverse procedure for the installation.

[Removal of heat sink]

Notes:

- Note on work

In the entire maintenance, it is recommended to wear gloves for measures against static electricity and prevention of injuries.

- Thermal interface

Thermal interface (cool seat) is put between the heat sink and the processor.

The thermal interface is softened at a higher temperature and hardened at a lower temperature.

To allow the heat sink to be removed easily, start the removal procedure as soon as possible after the power-off of the Server.

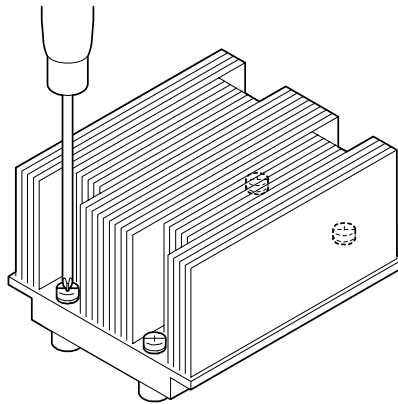
- Note on removal of screws (4) fixing heat sink

After putting insulation seat (such as insulation sponge) on the Processor board to allow stable work.

- Note on removal of heat sink

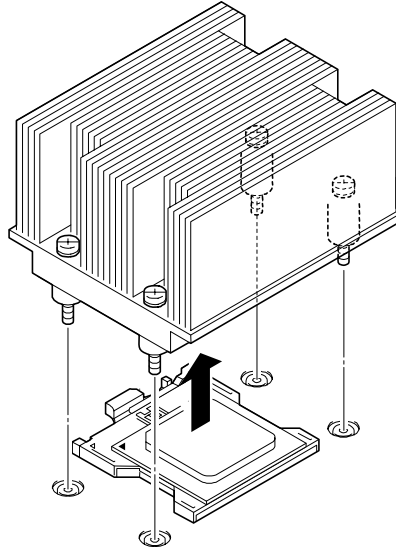
The heat sink includes thin metallic plates. Take sufficient note so that your hands may not be cut by the plates.

1. Remove the screws (4) fixing the heat sink.



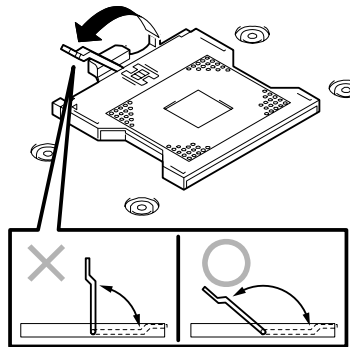
2. Remove the heat sink. Swing it from side to side for easy removal.

NOTE: If the heat sink cannot be removed at all, heat it with a dryer first.

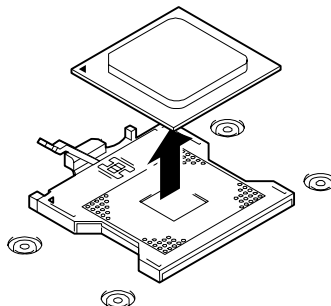


[Replacement of processor]

1. Open the lever of the socket on which the processor is installed to its end completely.

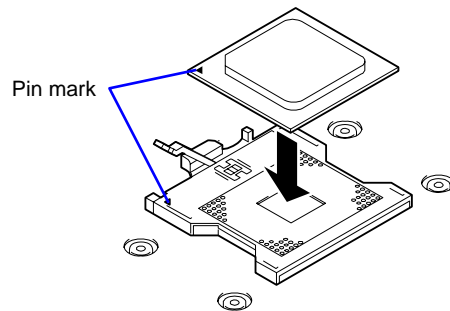


2. Remove the processor from the socket.



3. Install a new processor in the reverse procedure.

Note the direction of the processor in the installation. Match the pin mark on the processor with that on the socket to install it correctly.



[Installation of heat sink]

Install the heat sink in the procedure reverse to the removal.

Notes:

Any used thermal interface cannot be reused.

If the heat sink is removed from the processor once, remove the thermal interface pasted on the processor and heat sink completely by using a plastic paddle or plate. Then paste new thermal interface on the heat sink

- For replacement of processor board

Use the new thermal interface attached to the processor board of a maintenance device.

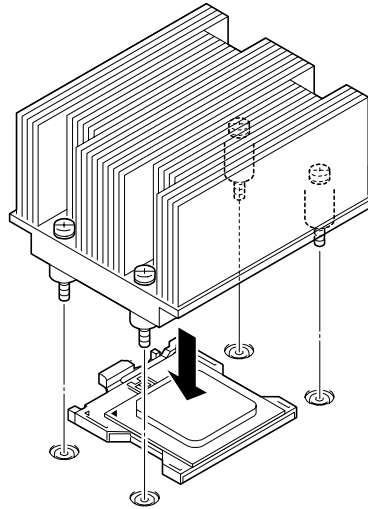
- For replacement of processor

Use the new thermal interface attached to the processor of a maintenance device.

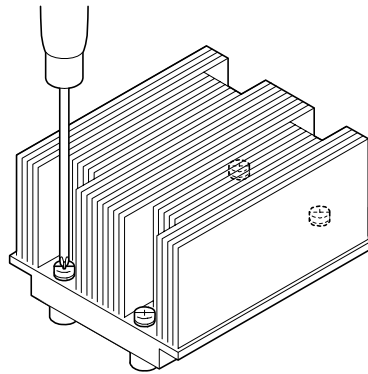
- For replacement of heat sink

Use the new thermal interface attached to the heat sink of a maintenance device.

1. Put the heat sink with the attached heat sink pasted on the processor quietly. The heat sink has no specific front and rear sides.

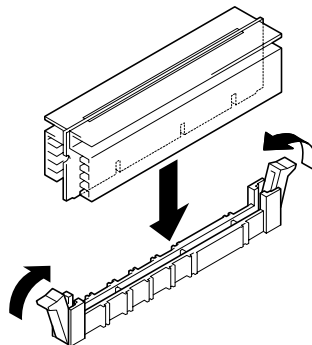


2. Fix the heat sink by using the screws (4) with the heat sink pressed downward by a hand.



[Replacement of VRM]

1. Open the left and right levers on the VRM socket together to their ends and pull out the VRM directly above.



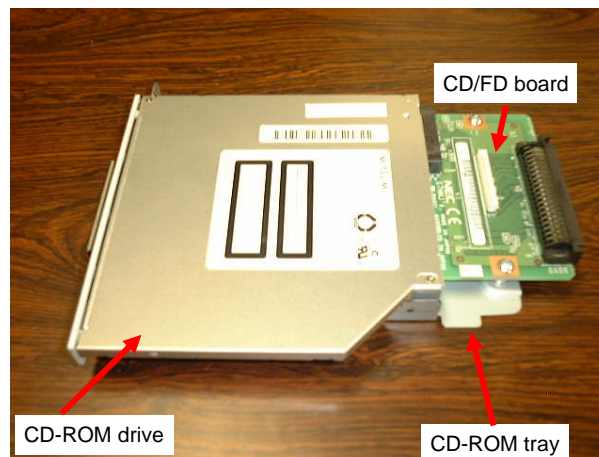
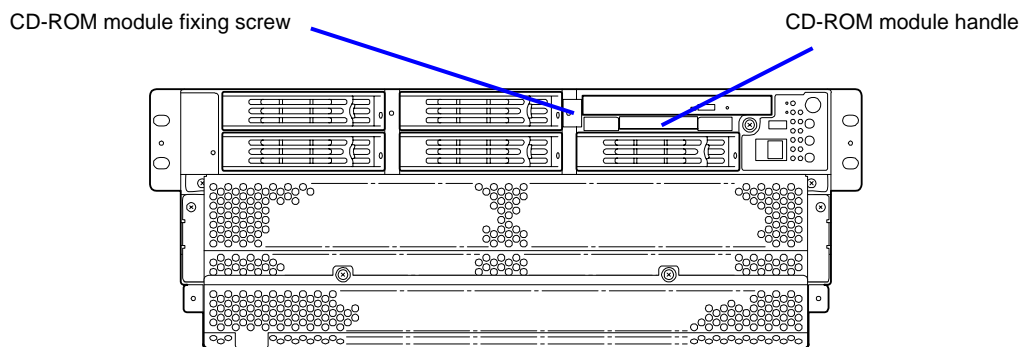
2. Install the VRM in the reverse procedure.

4.9.5 Replacement of CD-ROM Drive or CD/FD Board on 140Rd-4 Chassis

Note:

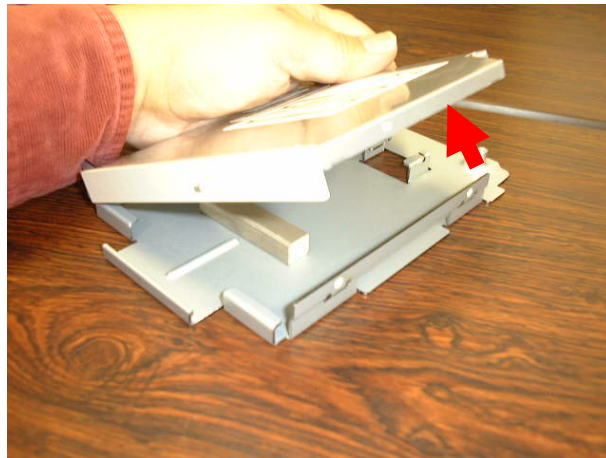
Do not apply this procedure to the replacement of the CD-ROM drive, CD/FD board or FD drive installed in the Server on the 140He chassis because the FD cable must be removed. See the next subsection for the replacement of these devices installed in the Server on the 140He chassis.

1. Release the lock on the front bezel by using the security key to remove the front bezel.
2. Remove the screw (1) fixing the CD-ROM module on the front face of the Server.
3. Hold the handle on the CD-ROM module and pull out the module toward you to remove it from the Server.



CD-ROM module

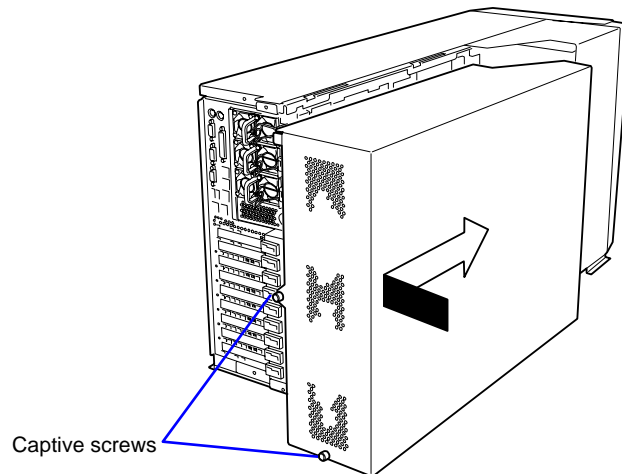
4. Remove the screws (2) fixing the CD/FD board .
5. Remove the CD-ROM drive and tray as shown in the photo below (no screws are required to fix them).



6. Remove the CD/FD board from CD-ROM drive.
7. Do the reverse procedure for the installation.

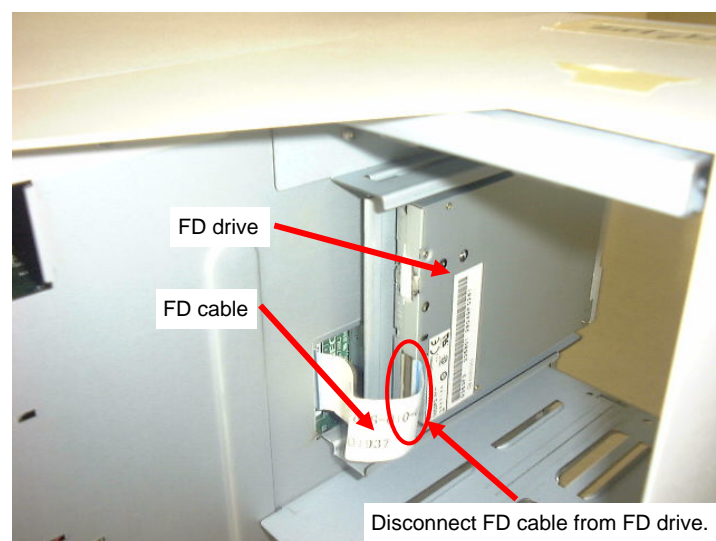
4.9.6 Replacement of CD-ROM Drive, CD/FD Board or FD Drive on 140He Chassis

1. Release the lock on the front bezel by using the security key to remove the front bezel.
2. Loosen the captive screw (2) on the rear of the Server, slide the rear access cover to the rear direction, and lift the cover to remove it from the Server.



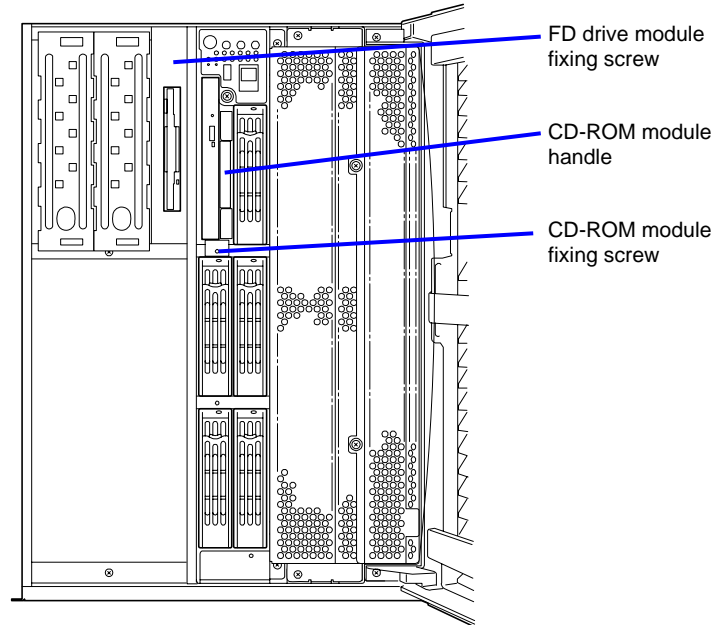
3. If a 5-inch device is installed, disconnect all the cables connected to the 5-inch device to remove it from the Server.
4. Disconnect the FD cable from the mating connector on the FD drive. Do not disconnect the connector at the other end.

IMPORTANT: Always disconnect the FD cable before pulling out the CD-ROM module or FD drive installed in the Server on the 140He chassis. If not, the FD cable will be broken.



5. To replace the FD drive, remove the screw (1) fixing the FD drive module on the front of the Server.

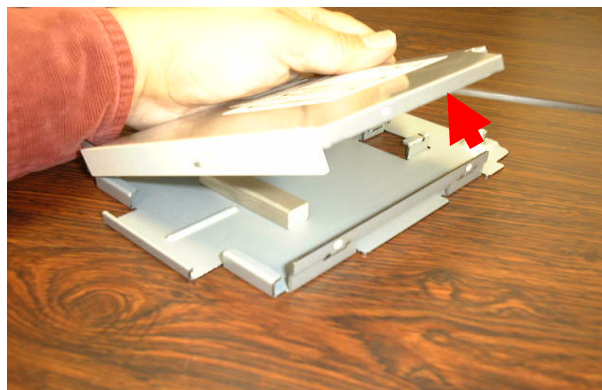
To replace the CD-ROM drive or FD/CD board, remove the screw (1) fixing the CD-ROM module on the front of the Server.



6. To replace the FD drive, pull out the FD drive module toward you from the Server.

To replace the CD-ROM drive or FD/CD board, hold the handle on the CD-ROM module to pull out it toward you from the Server.

7. To replace the FD drive, remove the drive from the FD bracket (no screws are required to fix them).
8. To replace the CD-ROM drive or FD/CD board, remove the screws (2) fixing the CD/FD board to remove it.
9. Remove the CD-ROM drive and tray as shown in the photo below (no screws are required to fix them).

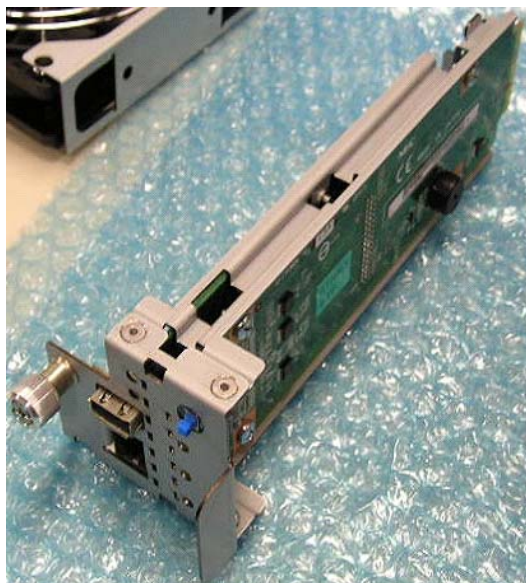
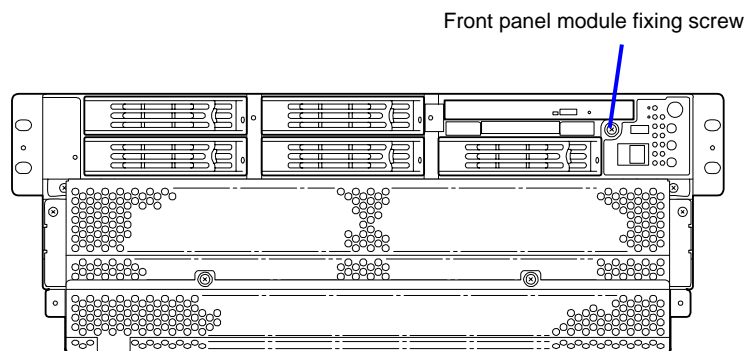


10. Remove the CD/FD board from CD-ROM drive.
11. Do the reverse procedure for the installation.

4.9.7 Replacement of Front Panel

The figure shows the Server mounted on the 140Rd-4 chassis. The Server on the 140He chassis is different only in that it is mounted longitudinally. The replacement procedure is the same for both the Server on the 140Rd-4 chassis and that on the 140He chassis if not specified especially.

1. Release the lock on the front bezel by using the security key to remove the front bezel.
2. Loosen the captive screw (1) fixing the front panel on the Server by using a proper screwdriver.
3. Hold the captive screw loosened in step 2 above and pull out the front panel module toward you to remove it from the Server.



Front panel module

4. Do the reverse procedure for the installation.

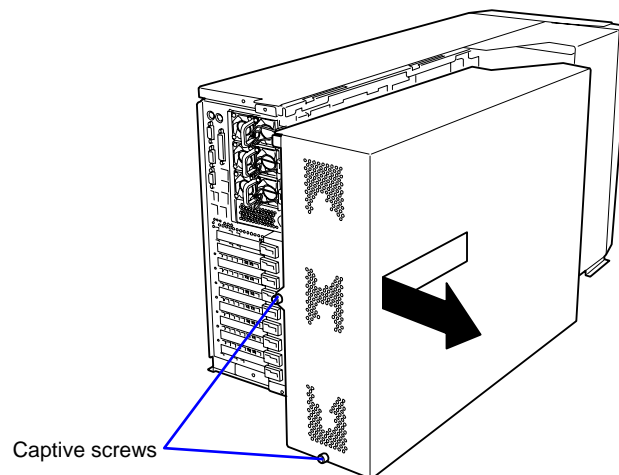
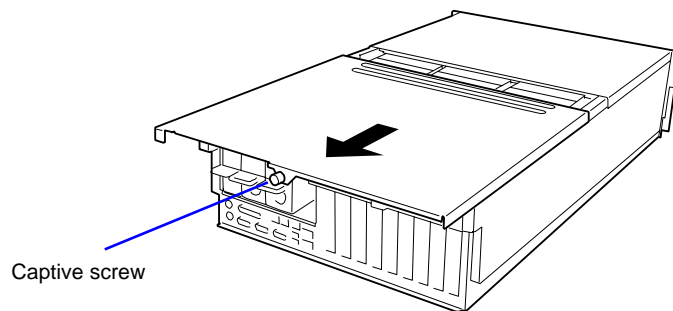
4.10 Device Replacement (2)

Before any device other than those described in Section 4.9 above can be removed, the rear and front access covers must be removed in the status that the Server is pulled out from the rack.

Refer to the User's Guide for how to pull out the Server from the rack.

4.10.1 Removal or Installation of Rear Access Cover

1. Loosen the captive screw fixing the rear access cover by using a proper screwdriver, slide the cover to the rear direction, and lift the cover to remove it from the Server.



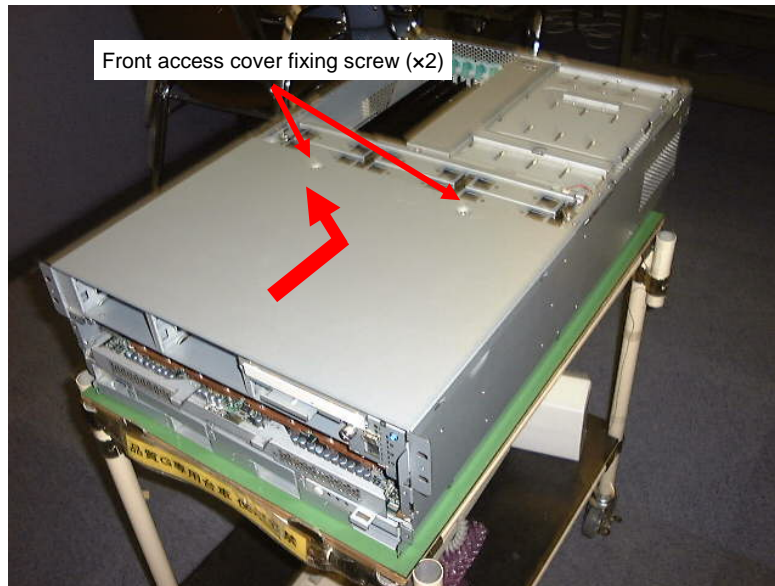
2. When the rear access cover is installed, check that no tools and screws are left in the Server, that the proper devices are securely installed in the Server, and that there are no uninstalled devices.
3. Mate the tab on the rear access cover with the slot on the frame of the Server, slide the rear access cover to the front direction while pressing it to the Server lightly, and fasten the captive screw to fix it.

4.10.2 Removal or Installation of Front Access Cover

This description in this subsection applies only to the Server mounted on the 140Rd-4 chassis.

1. [140Rd-4 chassis]

After removing the rear access cover, remove the screws (2) fixing the front access cover. Then slide the front access cover to the rear direction and lift the cover to remove it from the Server.



2. Mate the tab on the rear access cover with the slot on the frame of the Server, slide the rear access cover to the front direction with it pressed to the Server, and fasten the screws (2) to fix it.

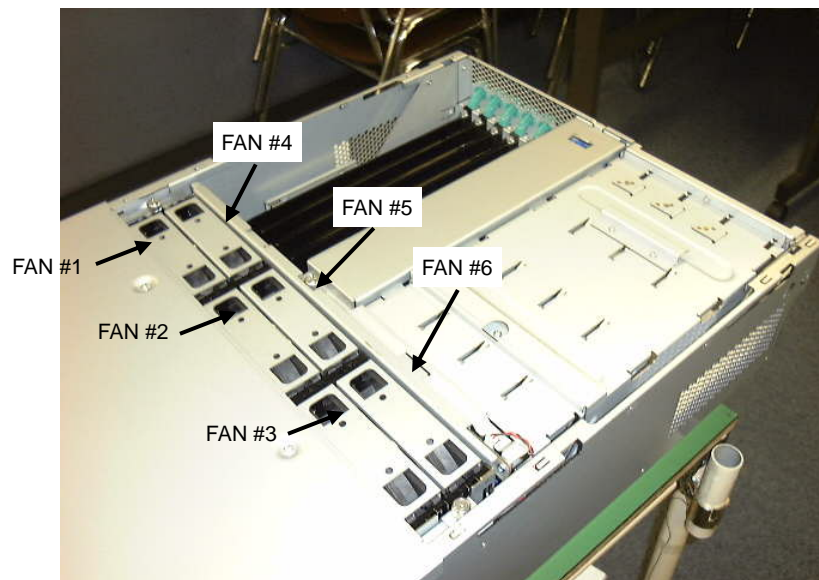
4.10.3 Fan Replacement

The fans in the Server can be replaced even if the power is turned on (hot-swap replaceable).

The system can be operated if a single fan is defected (redundant feature). However, replace the defected fan as soon as possible.

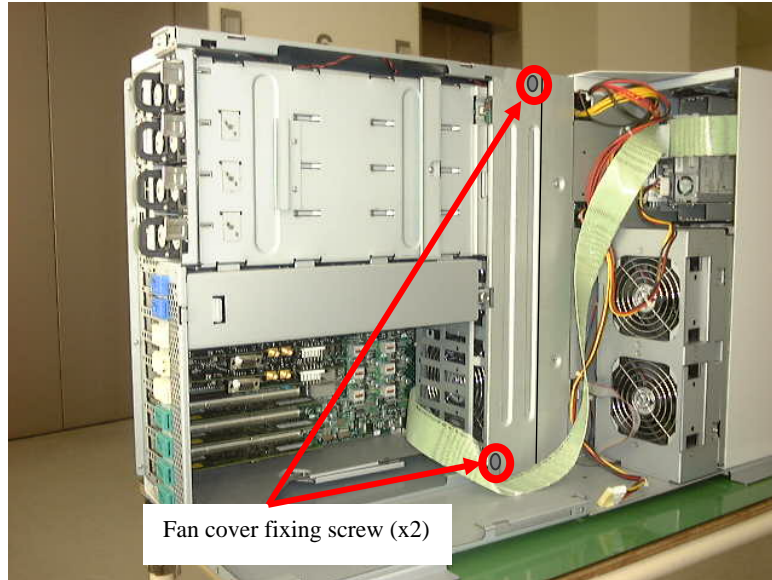
[140Rd-4 chassis]

1. Remove the rear access cover from the Server.
2. Remove the fan with the corresponding error lamp lit amber from the Server and install a new fan.
3. Make sure that the error lamp is off, and install the rear access cover on the Server.

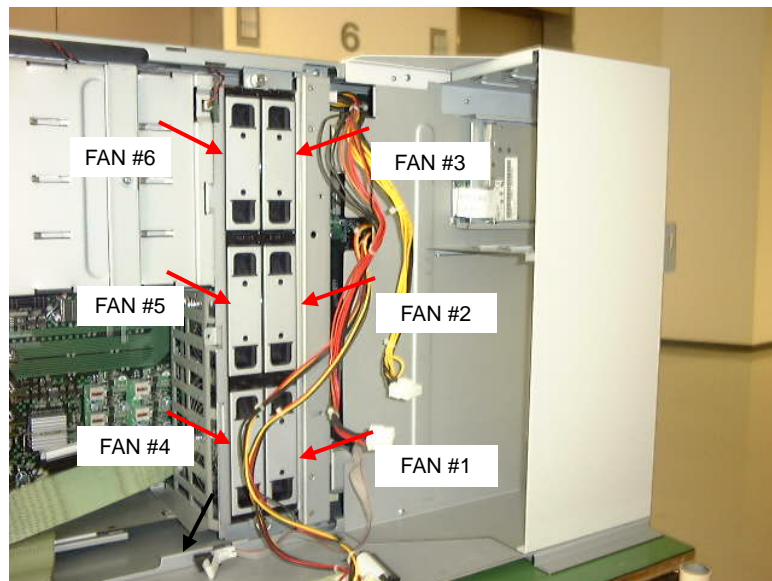


[Standard HDD cage side in 140He chassis]

1. Remove the rear access cover from the Server.
2. Remove the screws (2) fixing the fan cover and slide the cover to the rear direction to remove it.



3. Remove the fan with the corresponding error lamp lit amber from the Server and install a new fan.

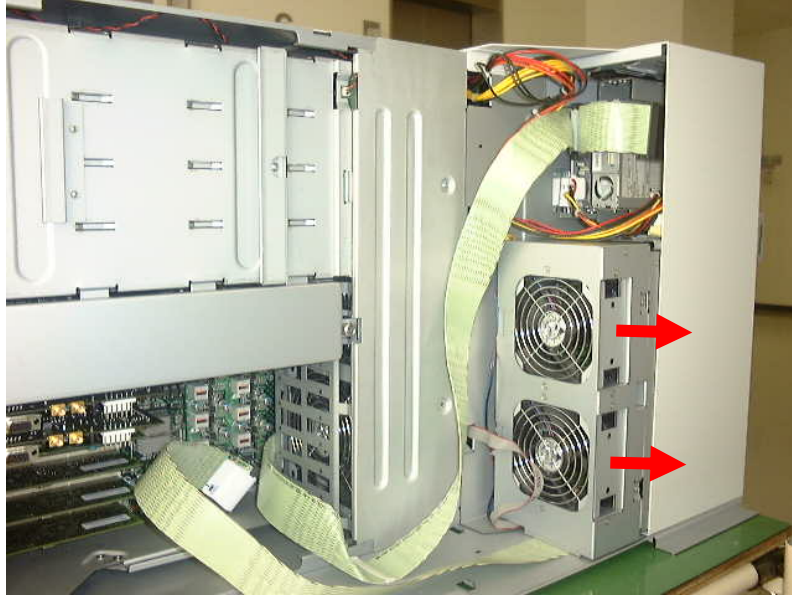


4. Make sure that the error lamp is off, and install the fan cover and the rear access cover.

NOTE: Take sufficient care that no cables in the Server risk being caught while the fan cover is installed.

[Additional HDD side in 140He chassis]

1. Remove the rear access cover from the Server.
2. Remove the fan with the corresponding error lamp lit amber from the Server and install a new fan.

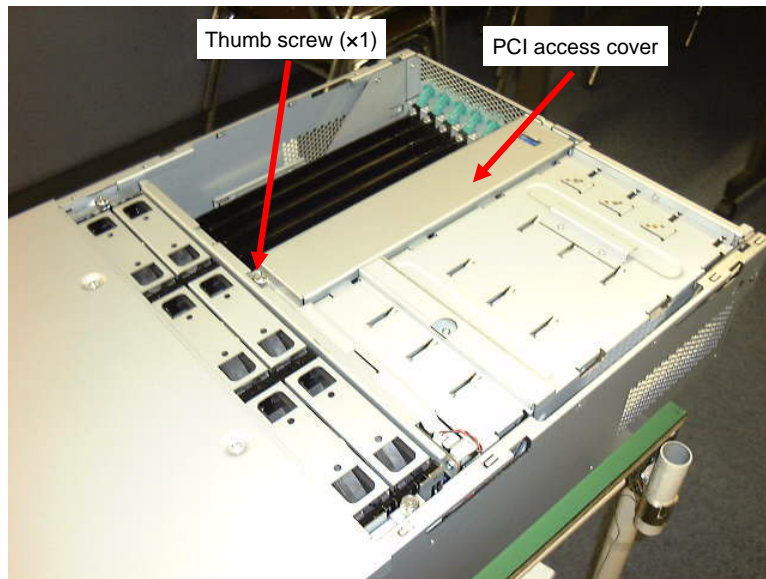


3. Make sure that the error lamp is off, and install the rear access cover on the Server.

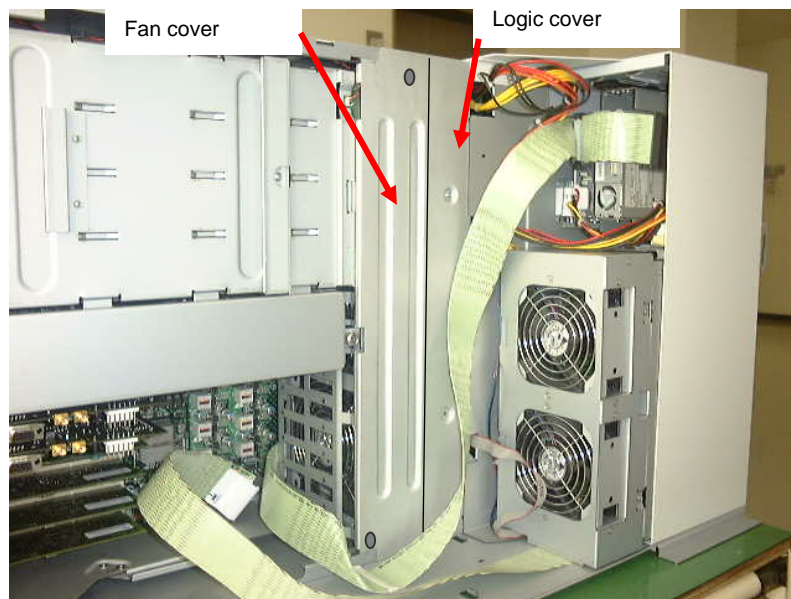
4.10.4 Replacement of Power Cage or Power BP

The figure shows the Server mounted on the 140Rd-4 chassis. The Server on the 140He chassis is different only in that it is mounted longitudinally. The replacement procedure is the same for both servers, except when specified otherwise.

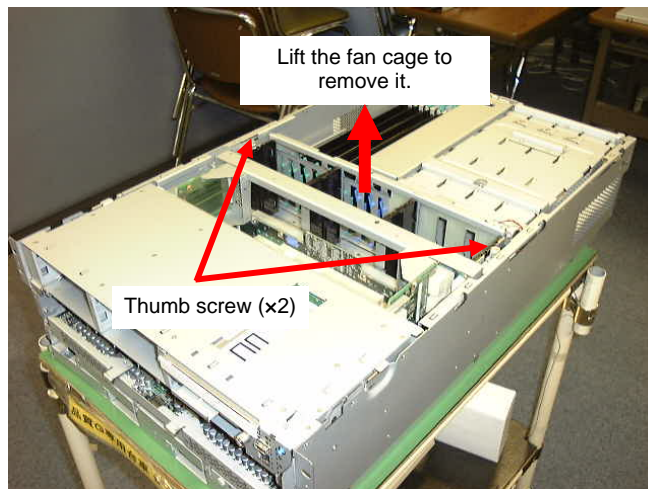
1. Make sure that the power of the Server is off, disconnect the AC cables from all the power units and remove the power units from the Server.
2. Remove the rear access cover from the Server.
3. Loosen the captive screw (1) fixing the PCI access cover using a proper screwdriver to remove the cover from the Server.



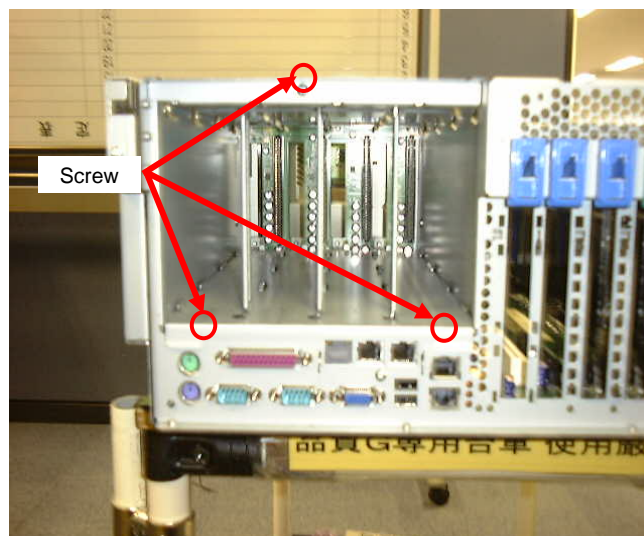
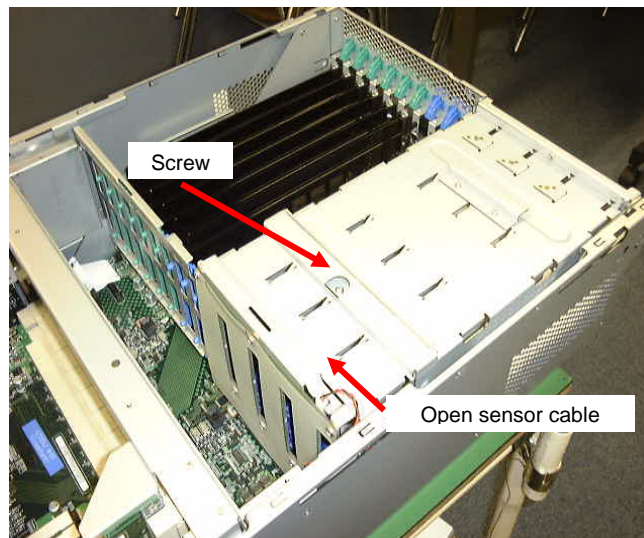
4. Remove all the fans. (For the Server in the 140He chassis, first remove the fan cover and the logic cover to remove all the fans.)



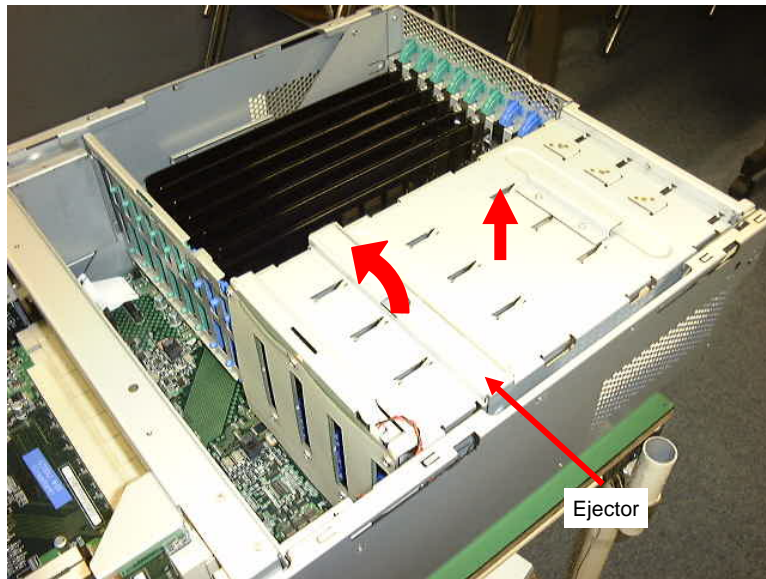
5. Remove the front access cover (only for the Server on the 140Rd-4 chassis).
6. Loosen the captive screws (2) fixing the fan cage and lift the cage to remove it from the Server.



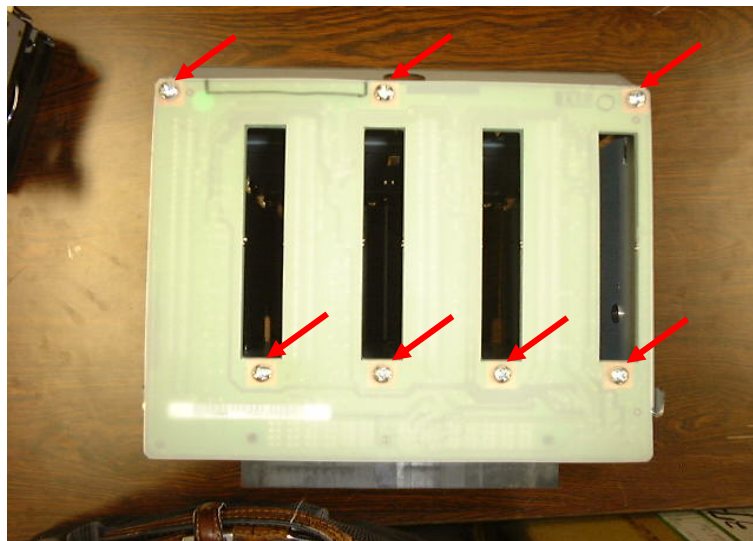
7. Remove the screws (4) fixing the power cage and the open sensor switch cable connector.



8. After pulling up the ejectors on the power cage, lift the power cage to remove it from the Server.



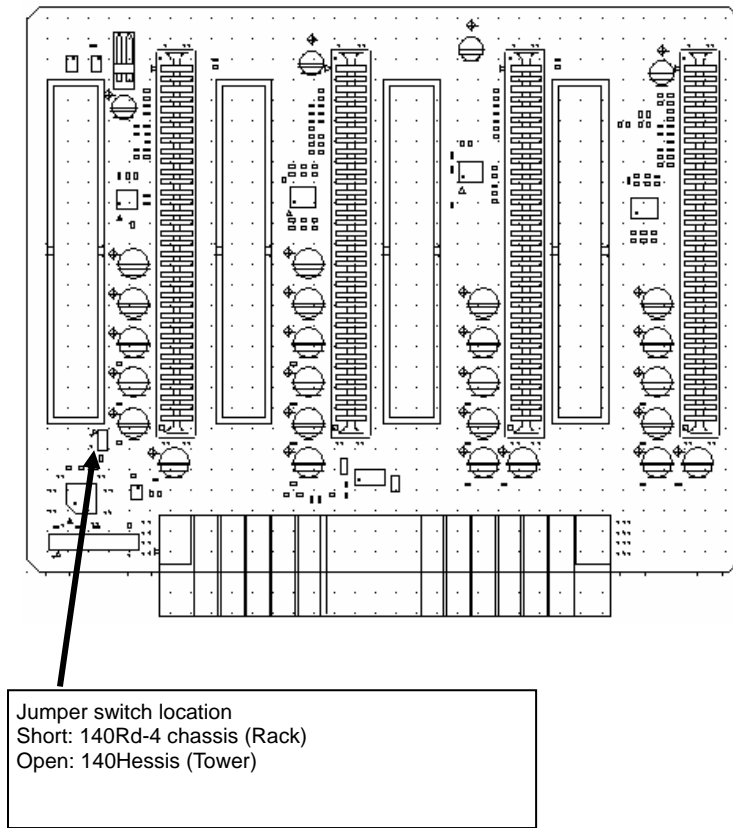
9. To replace the power BP, remove the screws (7) to remove the power BP from the power cage.



10. Install the power cage in the Server in the reverse procedure.

NOTE: The power BP has a jumper switch used to specify whether the Server is mounted on the 140Rd-4 or 140He chassis. Set the jumper switch on the new power BP after the replacement to be the same as that on the power BP before the replacement. The position of the jumper switch is shown in the figure on the next page.

* Jumper switch on power BP



The jumper switch on a power BP of a maintenance device is short-circuited at the shipment from the factory. If the power cage containing the power BP is installed in the Server on the 140He chassis (tower), remove the jumper switch to make the power BP open.

4.10.5 Replacement of Management LAN Board or I/O Board

The figure shows the Server mounted on the 140Rd-4 chassis. The Server on the 140He chassis is different only in that it is mounted longitudinally. The replacement procedure is the same for both servers, except when specified otherwise.

Notes:

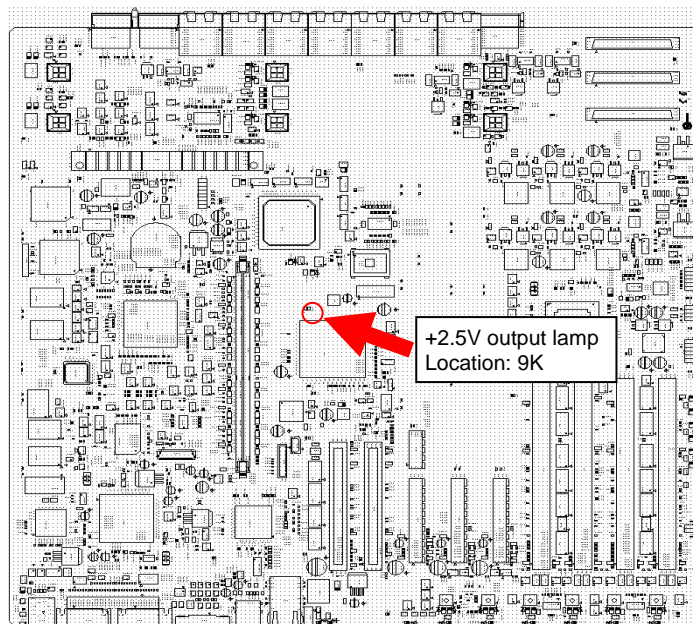
Before replacing the I/O Board, back up (save the server configuration information and the RMC (Remote Management Controller: A-BMC) information by using the Offline Maintenance Utility. Restore the information after the replacement.

Before the replacement, make sure that the +2.5 VDC output lamp on the I/O Board is off while the AC cables are disconnected from the Server.

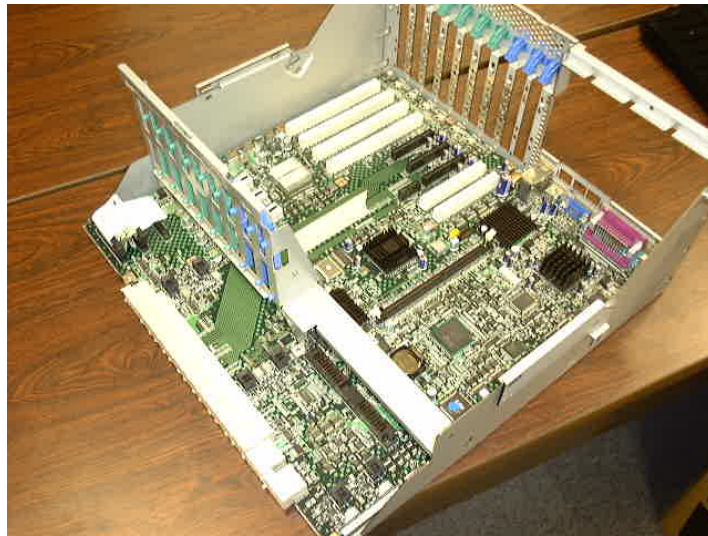
If the lamp is on, turn on the DC power of the Server once and run the POST before the replacement. Then turn off the power of the Server again, disconnect the AC cables, and make sure that +2.5 VDC output lamp on the I/O Board is off.

(With the lamp being on, the power is backed up by the onboard RAID battery.)

Before the +2.5 VDC output lamp can be checked, the rear access cover must be removed. The lamp is installed below the power cage.



The Server adapts the electronics bay structure. Accordingly, to remove the I/O Board, first remove the electronics bay from the Server.



[Electronics bay]

1. After making sure that the power of the server is off, remove the AC cables from all the power units. Then remove the rear access, front access, and PCI access covers.
2. If one or more PCI boards are installed, remove all the PCI boards.

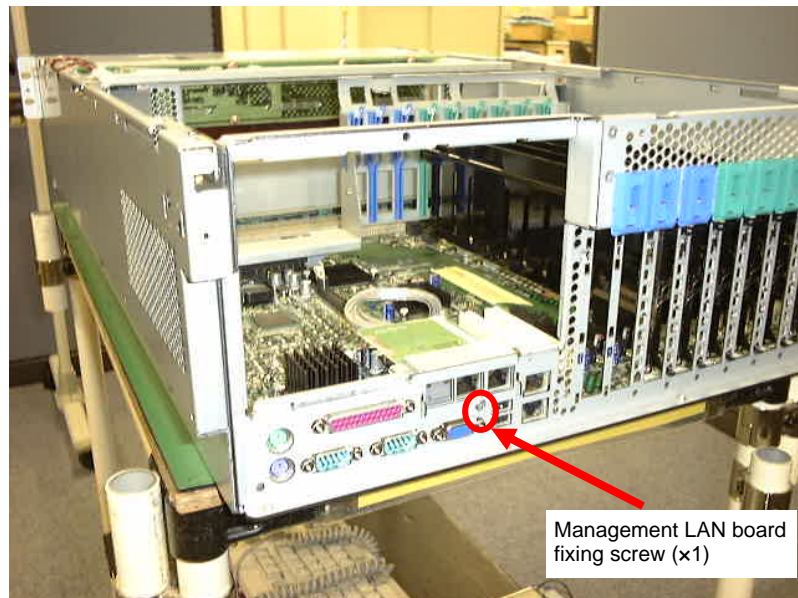
Before removing a PCI board, remove the cables connected to the board (if applicable).

NOTE: Always insert the PCI cards into the original slots on the new I/O Board without changing the installation positions.

Before removing the PCI board, note the installation position and put a label indicating the installation position on the PCI board.

3. Remove the fans, fan cage, and power cage.
4. Pull out the A-BMC cable connected to the I/O Board.

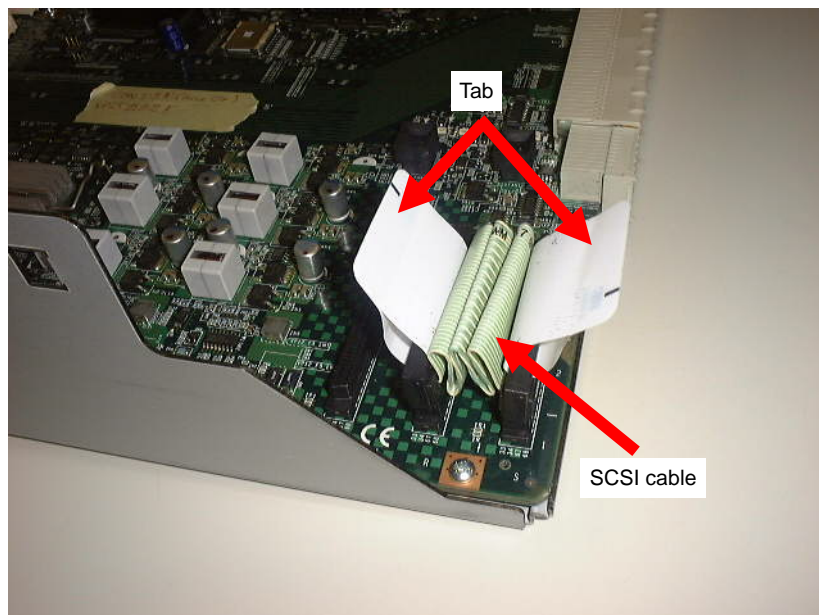
5. Remove the screw (1) fixing the management LAN board on the rear of the Server. Then remove the management LAN board.



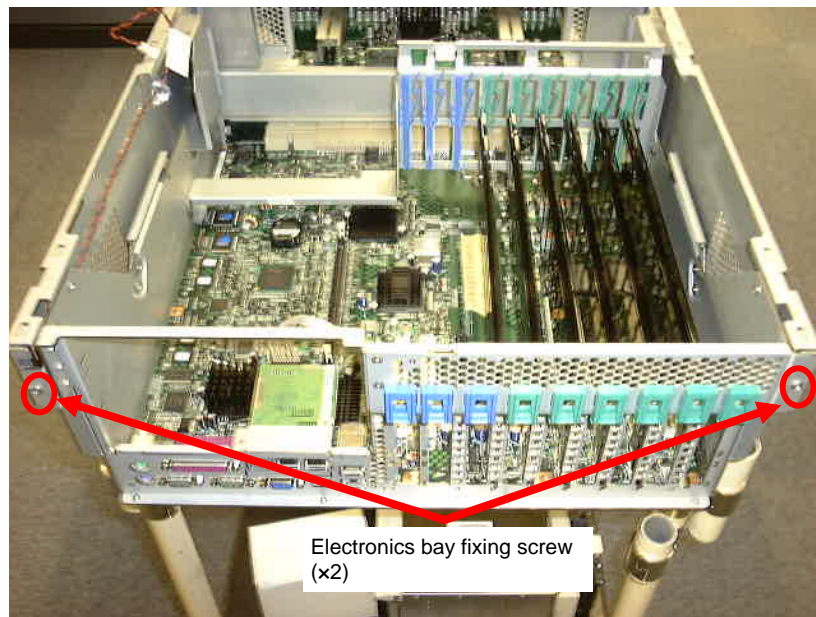
6. Disconnect the SCSI cables on the I/O Board.

The number of SCSI cables varies depending on the system configuration. Remove all the SCSI cables connected to the I/O Board.

To remove a SCSI cable, always hold the cable tab.

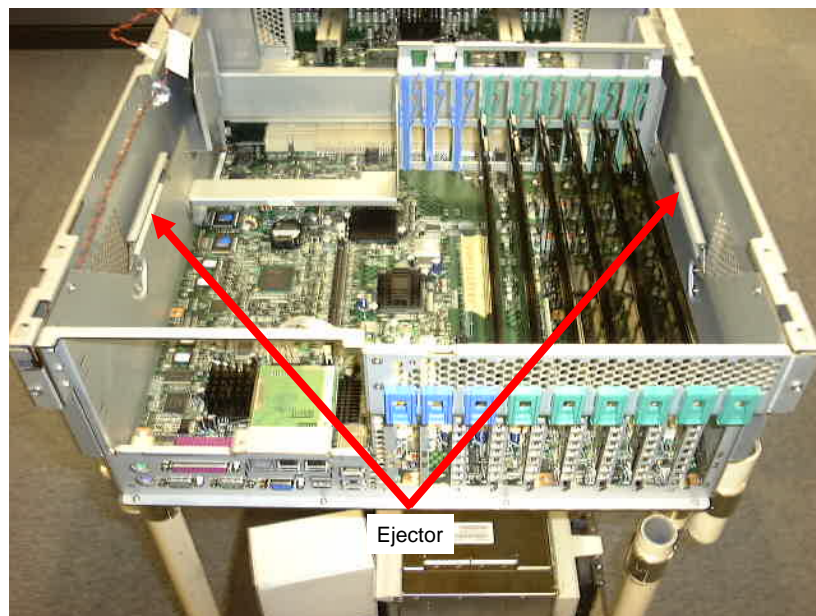


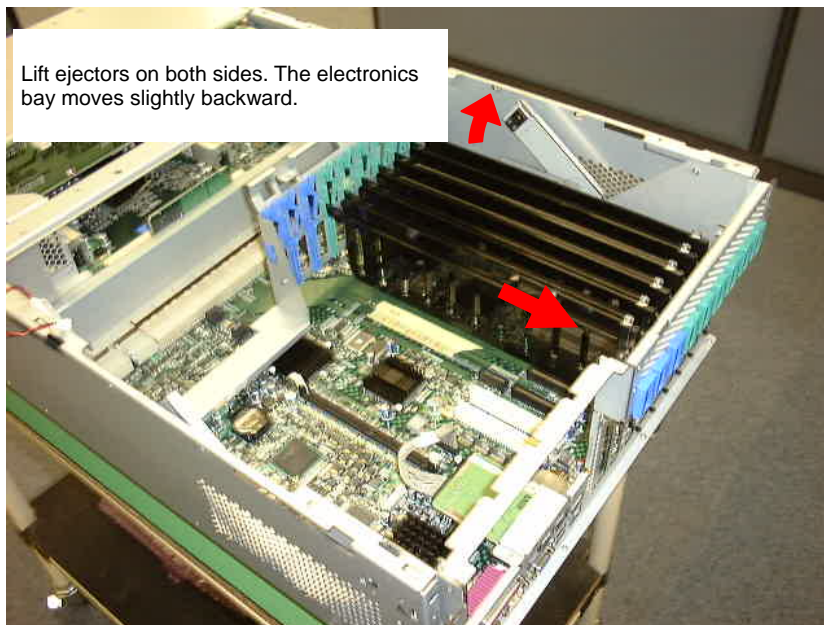
7. Remove the screws (2) fixing the electronics bay on the rear of the Server.



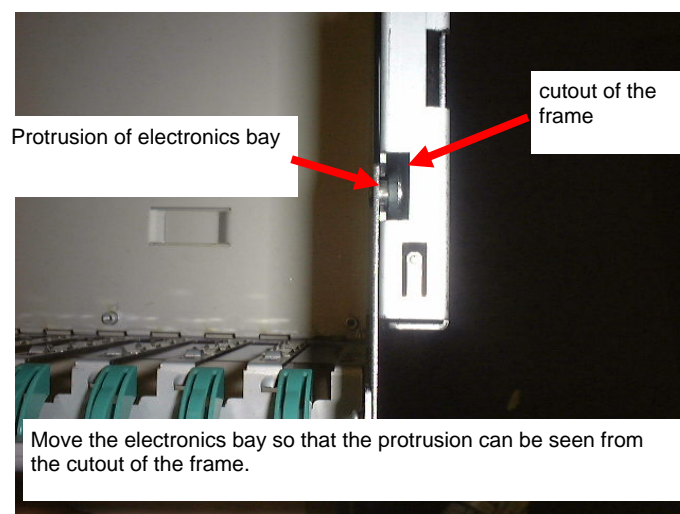
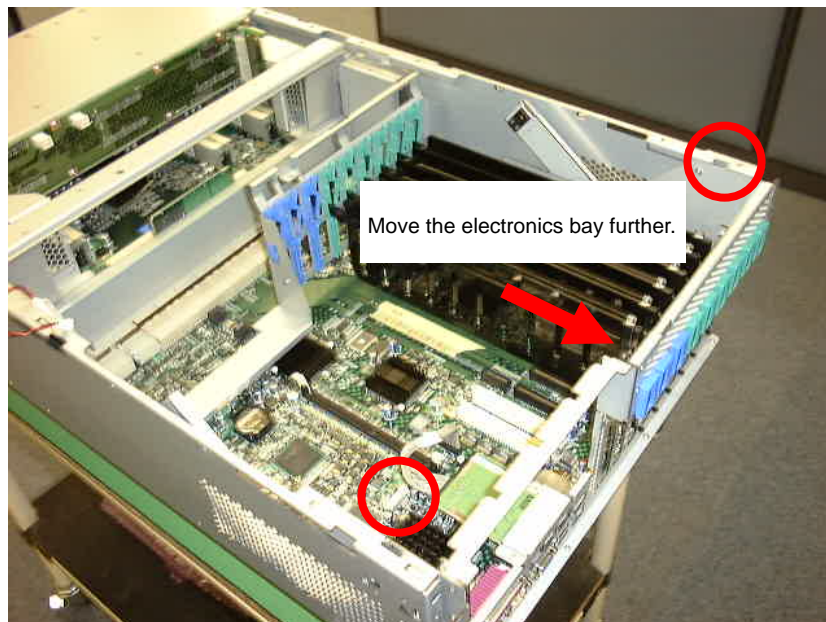
8. Release the lock of the ejector at each of the left and right ends and lift both ejectors at the same time.

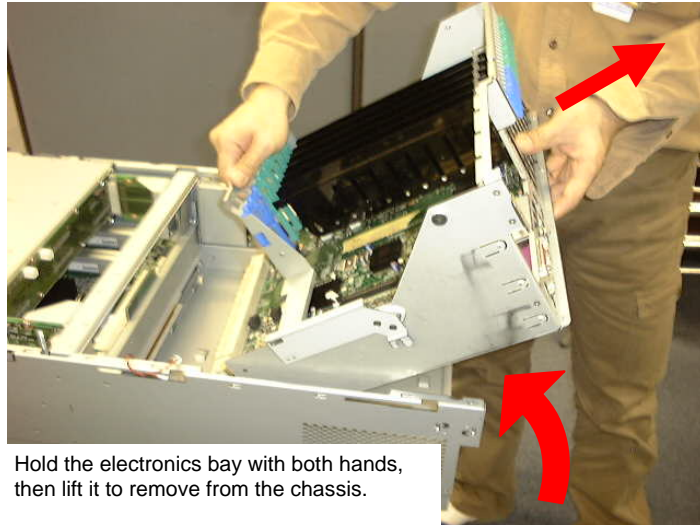
Lifting the ejectors allows the electronics bay to be moved to the rear direction a little, which then separates the I/O Board from the Main Board.



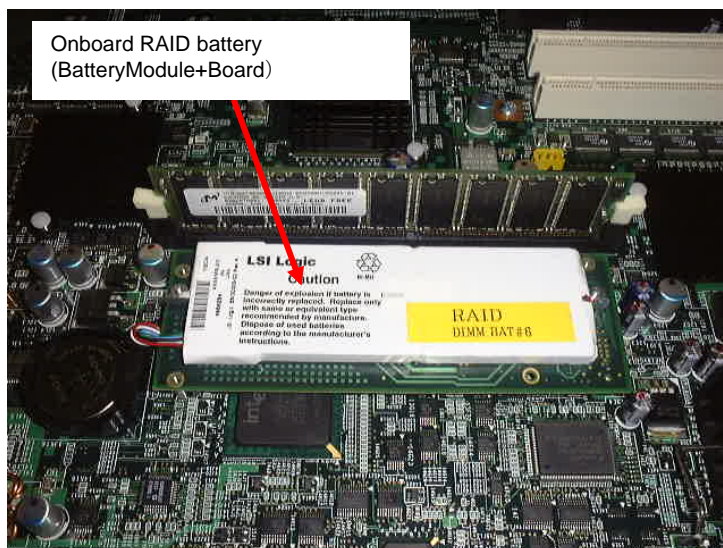


9. Hold the frame of the electronics bay and slide the bay in the rear direction to locate it at the position shown in the figure below. Then hold the electronics bay with both hands to lift it slowly as shown in the figure on the next page.





10. Remove the battery cable from battery connector.

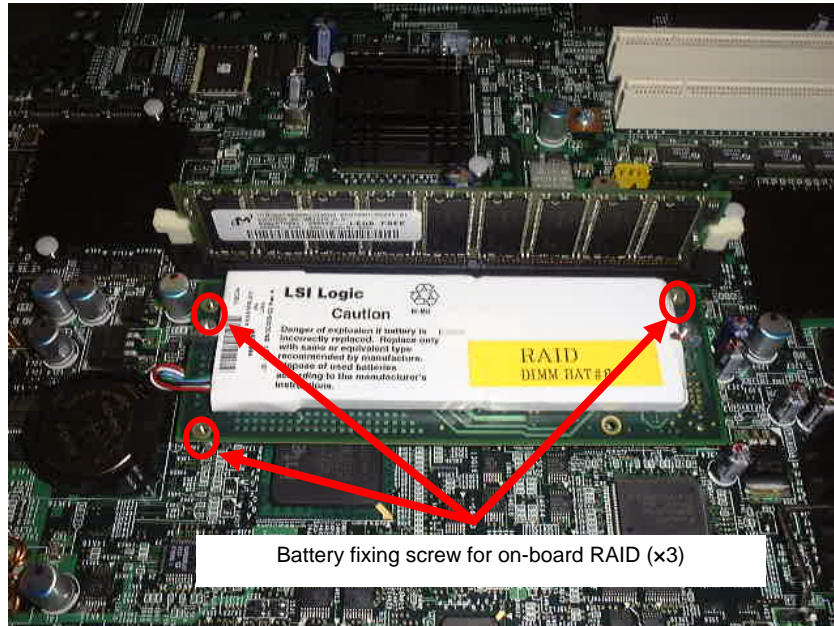


Remove the cable from the battery connector

11. Remove the battery and DIMMs for the onboard RAID installed on the I/O Board.

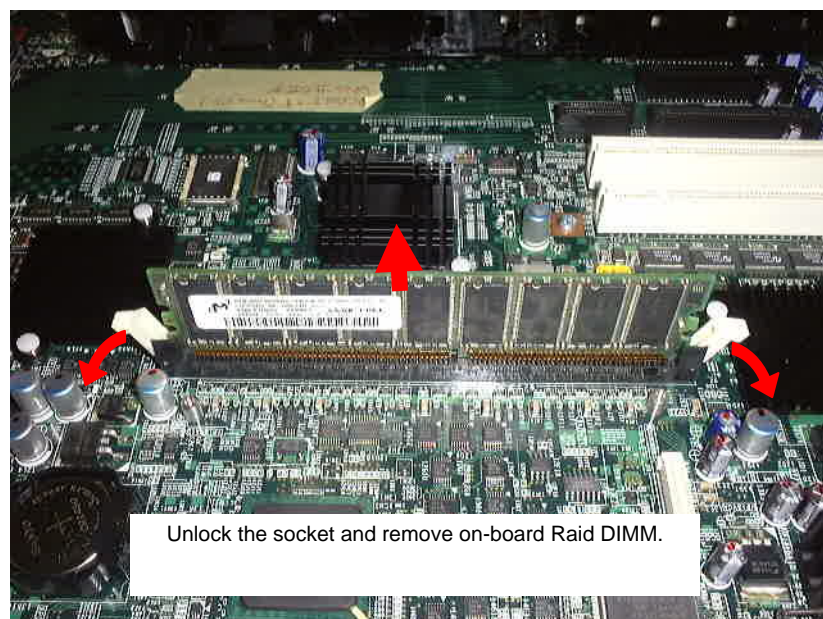
Remove the screws (3) fixing the battery for onboard RAID and lift the battery module (containing the battery and printed-circuit board) to remove it from the I/O Board.

Remove the locks at both ends of the socket holding the DIMM for onboard RAID and pull up the DIMM module to remove it from the I/O Board.



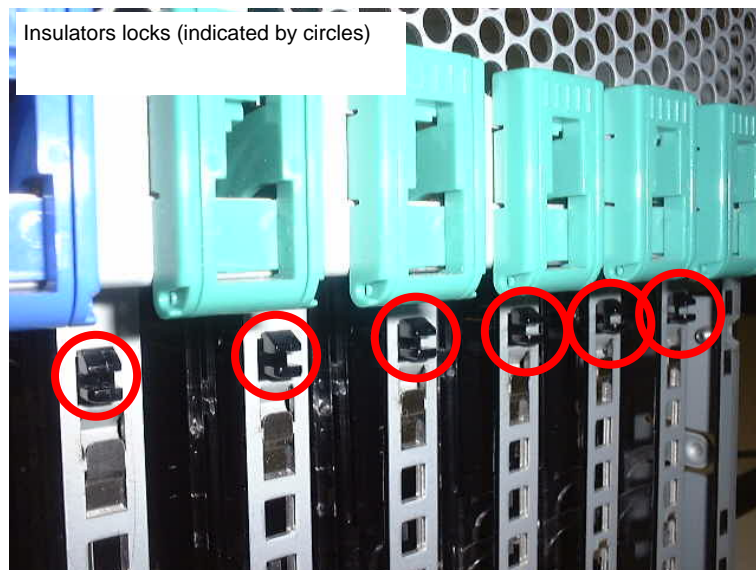
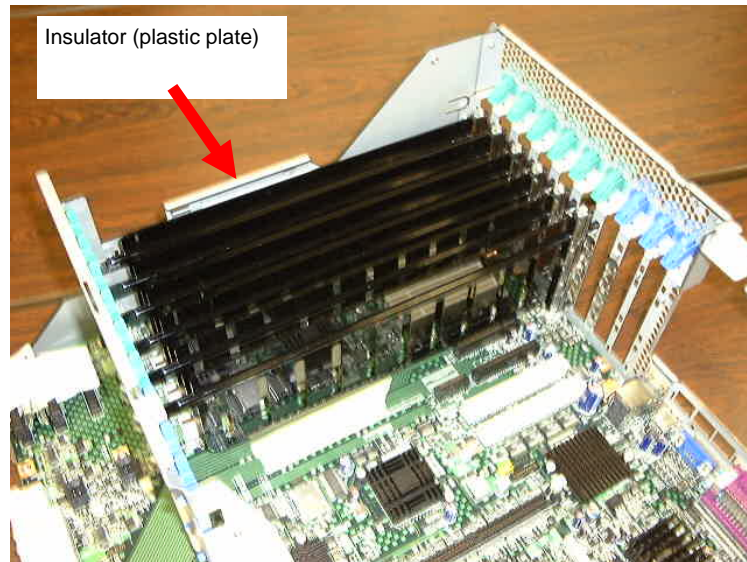
IMPORTANT: The battery is in the power distribution status if it is removed from the I/O Board.

Do not put the removed battery on a metallic plate to prevent the components on the rear face from being short-circuited.



- 12.** Remove all the initiators in the PCI slots on the electronics bay.

Remove the initiator lock appearing on the rear of the electronics bay. Then pull out the initiators to remove them.



- 13.** Remove the I/O Board from the electronics bay.

Remove the screws (15) fixing the electronics bay and I/O Board to remove the I/O Board from the electronics bay.

- 14.** Install the electronics bay in the reverse procedure.

While the electronics bay is inserted into the Server or connected to the Main Board by using the ejectors, check that no connector pins risk bending and that no cables risk being caught.

4.10.6 Replacement of Additional HDD Cage or SCSI-BP (8 HDDs) on 140He Chassis

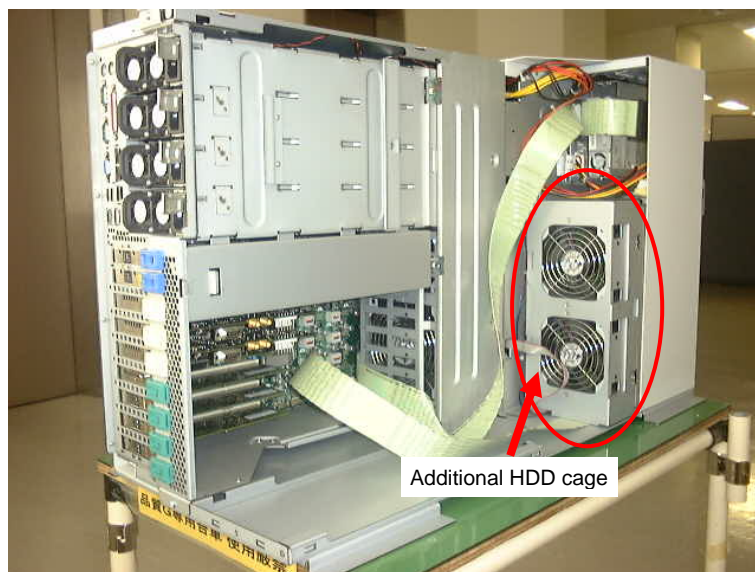
Notes:

To replace the additional HDD cage or SCSI-BP (8 HDDs), remove the HDDs installed in the additional HDD cage from the Server.

Before the replacement, always back up the RAID configuration information.

After the replacement, insert the HDDs into the original slots without changing the installation positions.

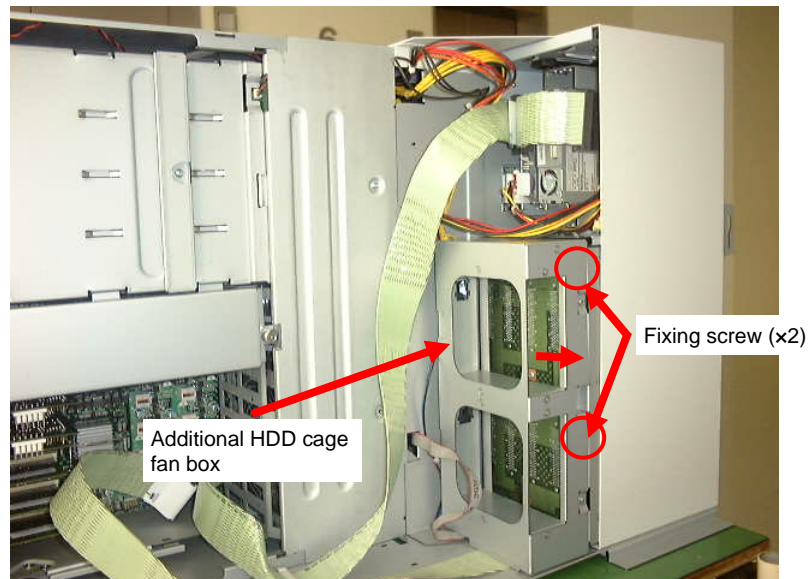
Before removing the HDDs, note their installation positions and put labels indicating the installation positions on the HDDs.



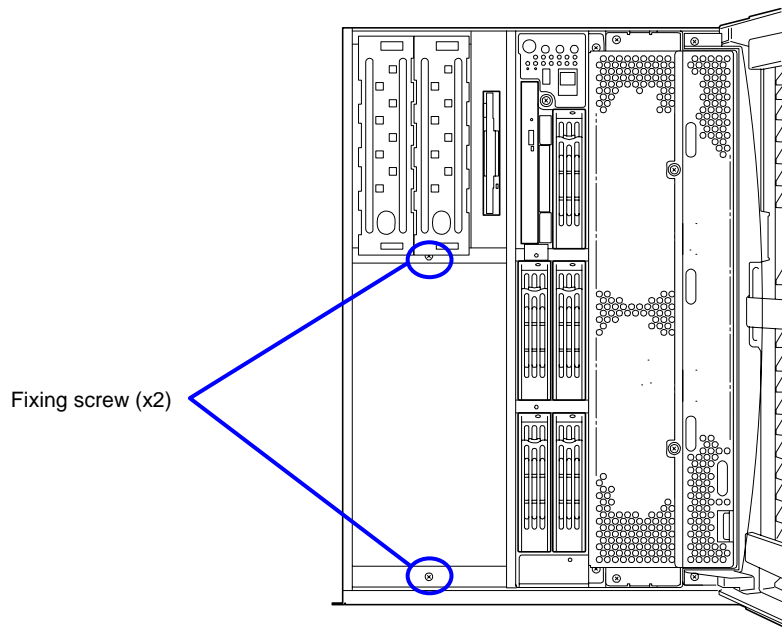
1. After making sure that the power of the Server is off, disconnect the AC cables from all the power units.
2. Remove all the HDDs installed in the additional HDD cage from the Server.
3. Remove the rear access cover from the Server.
4. Remove the two fans in the additional HDD cage.

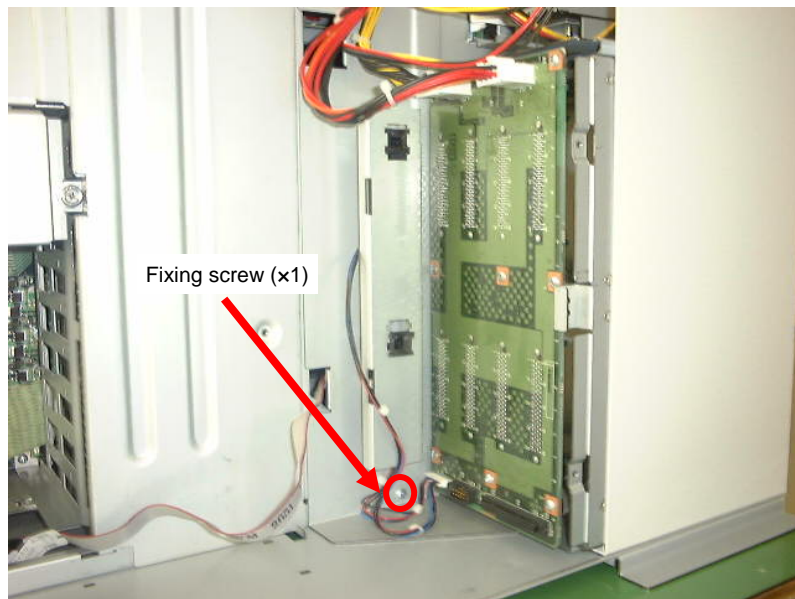
5. Remove the fan box for additional HDDs.

Remove the screws (2) fixing the fan box to remove it.



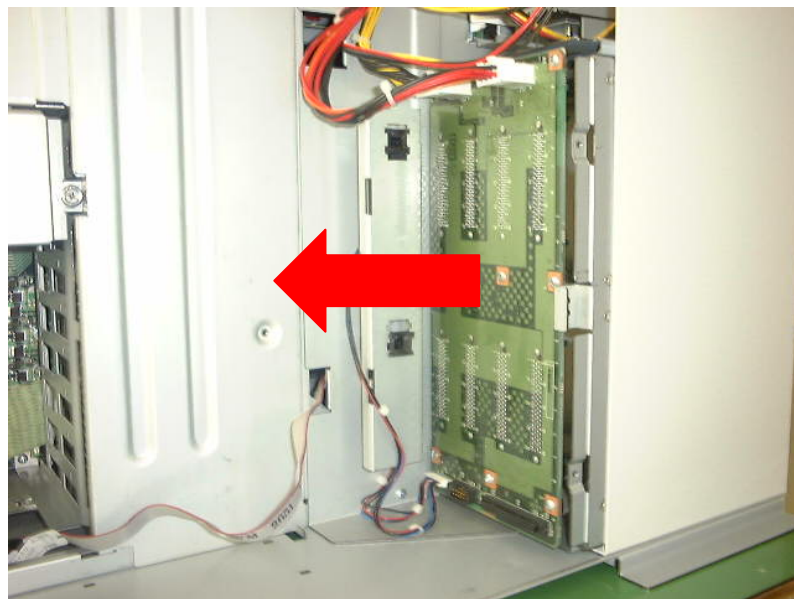
6. Remove all the cables connected to the SCSI-BP.
7. Remove the HDD cage fixing screws (3 in all) on the front of the Server or the bottom of the HDD cage.



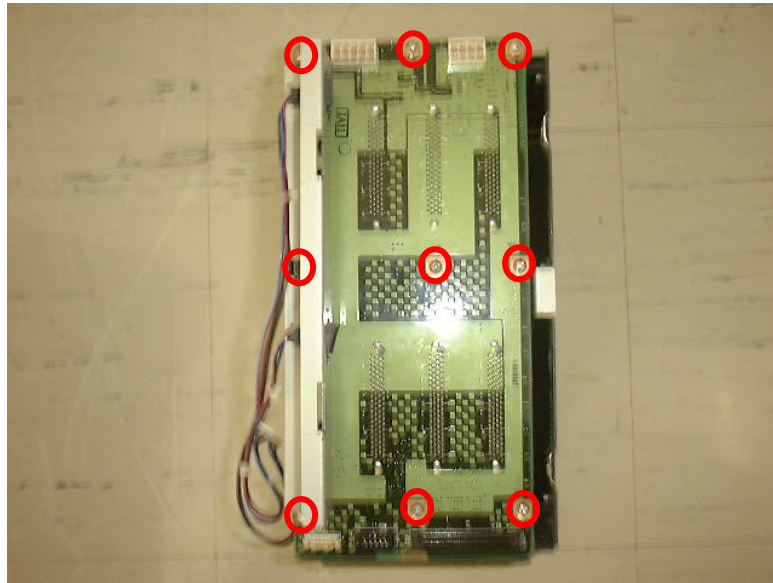


8. Slide the HDD cage in the rear direction to remove it from the Server.

NOTE: Slide the HDD cage slowly so that no cables can be caught while the cage is removed.



9. Remove the SCSI-BP fixing screws (9) on the HDD cage to remove the SCSI-BP.



10. Install a new SCSI-BP in the Server in the reverse procedure.

4.10.7 Replacement of SCSI-BP (5HDD/3HDD) on 140Rd-4 Chassis

Notes:

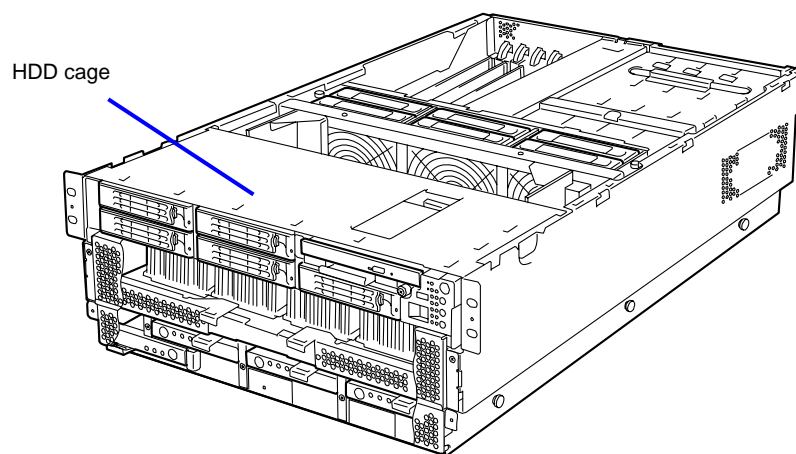
To replace the SCSI-BP, first remove all the HDDs from the Server.

Before the replacement, always back up the RAID configuration information.

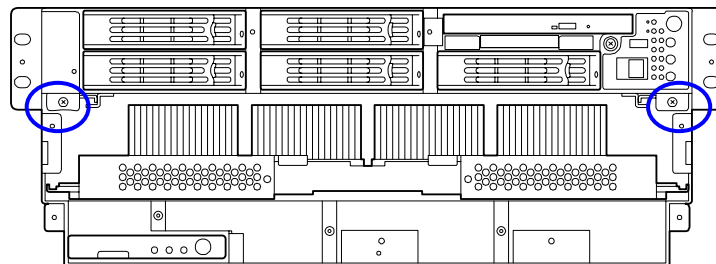
After the replacement of the SCSI-BP, insert the HDDs into the original slots without changing the installation positions.

Before removing the HDDs, note their installation positions and put labels indicating the installation positions on the HDDs.

Before the SCSI-BP can be replaced, the HDD cage must be removed.



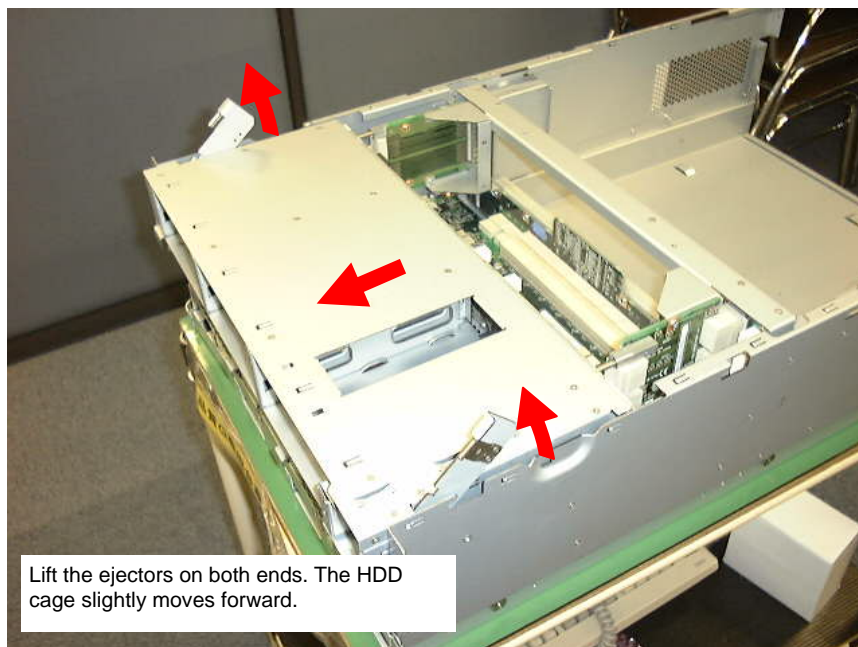
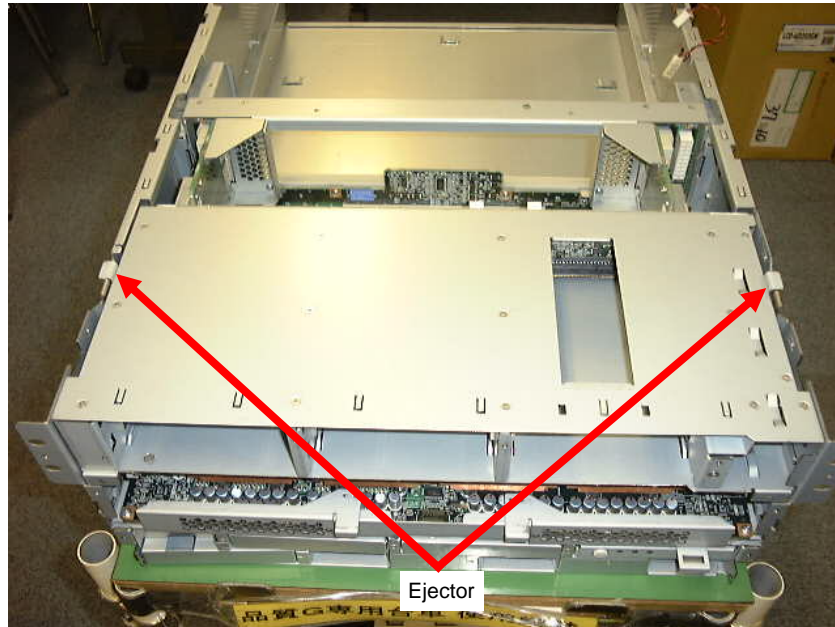
1. Make sure that the power of the Server is off, and disconnect the AC cables from all the power units.
2. Remove all HDDs, CD-ROM module and front panel module from the Server.
Remove any backup devices if installed.
3. Remove the rear access and front access covers.
4. For the Server of the 3.5-inch device model (3HDD model), pull out the SCSI and power cables for 3.5-inch devices from the HDD cage.
5. Remove the HDD cage fixing screws (2) on the front of the Server.



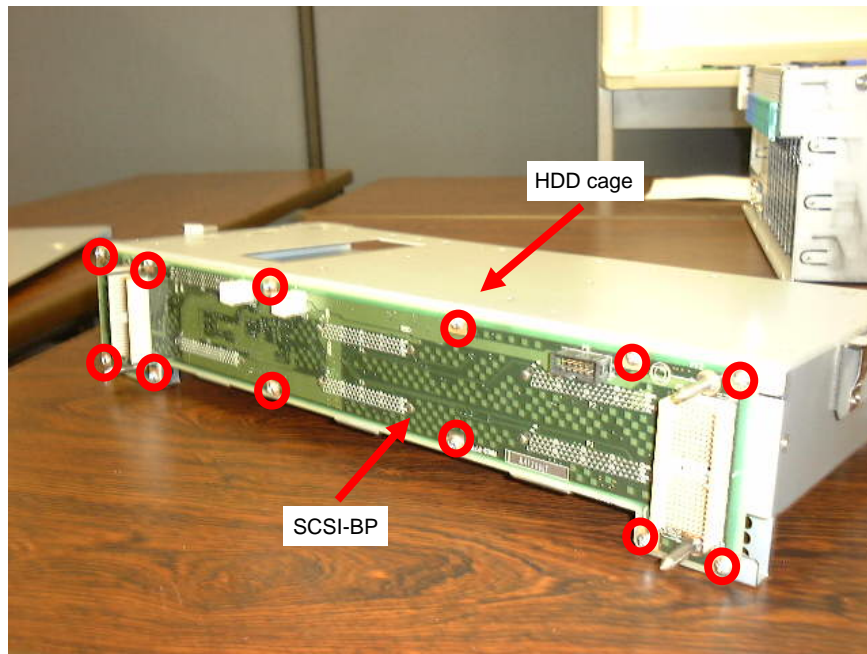
6. Release the lock of the ejector at each of the left and right ends of the HDD cage and lift both the ejectors at a time.

Release the lock of the ejector at each of the left and right ends and lift both the ejectors at a time.

Lifting the ejectors allows the HDD cage to be moved to the front direction a little, which then separate the SCSI-BP from the Connect Board.



7. Lift the HDD cage upward to remove it from the Server.
8. Remove the screws (12) fixing the HDD cage or SCSI-BP to remove the SCSI-BP from the SCSI cage.



9. Install the SCSI-BP in the reverse procedure.

While the SCSI-BP is connected to the Connect Board by using the ejectors, check the secure installation of the HDD cage in the Server so that no connector pins risk being bent or that no cables risk being caught.

4.10.8 Replacement of SCSI-BP(5HDD) on 140HE Chassis

Notes:

To replace the SCSI-BP, first remove all the HDDs from the Server.

Before the replacement, always back up the RAID configuration information.

After the replacement of the SCSI-BP, insert the HDDs into the original slots without changing the installation positions.

Before removing the PCI board, note the installation position and put a label indicating the installation position on the PCI board.

1. Do steps 1 to 6 described in Subsection 4.10.7 above.

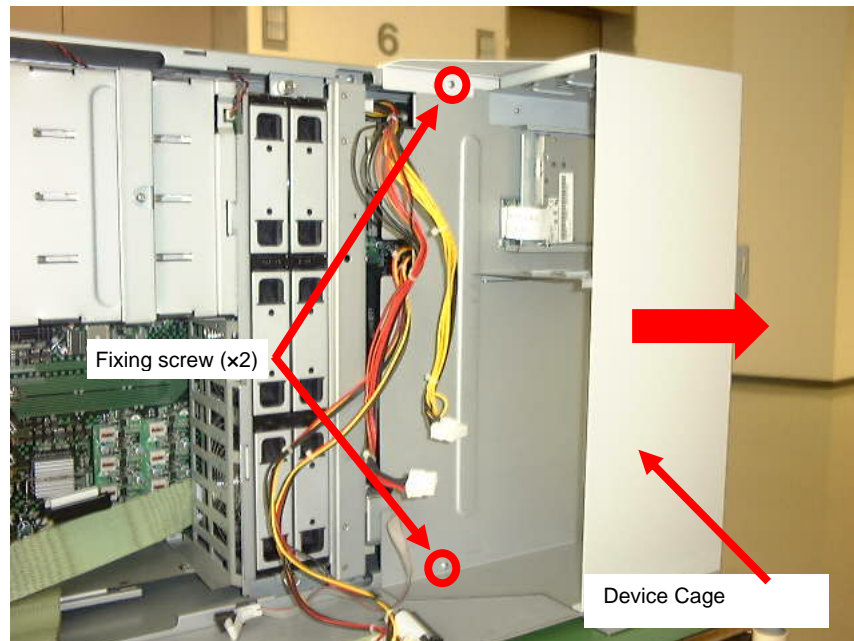
Remove all the HDDs instead of removing the HDDs only in the additional HDD cage.

2. Remove the CD-ROM and front panel modules from the Server.

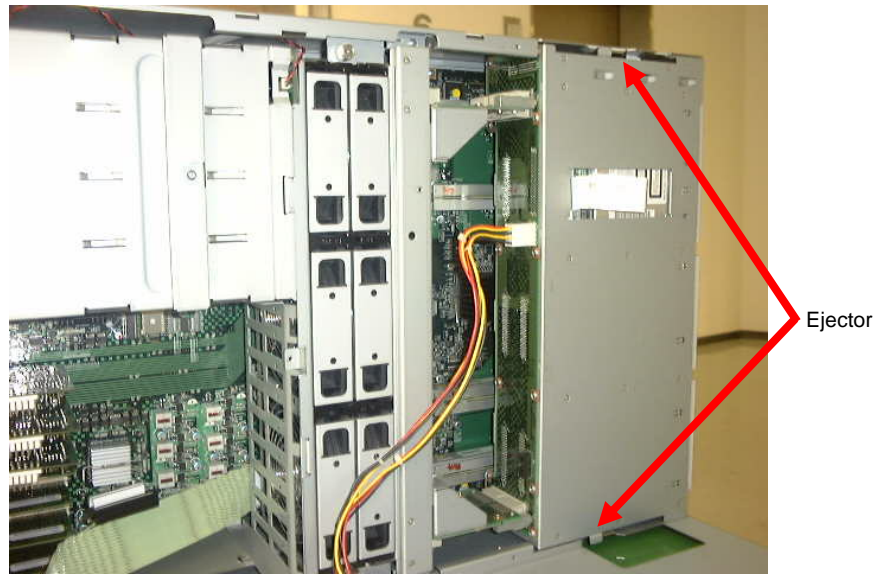
Remove any backup devices if installed.

IMPORTANT: Always disconnect the FD cable from the FD drive before pulling out the CD-ROM module installed in the Server on the 140He chassis. If not, the FD cable will be broken.

3. Remove the screws (2) fixing the fan cover to remove it.
And remove the screws (2) fixing the logic cover and slide the cover to the rear direction to remove it.
4. Remove the screws (2) fixing the front tower frame and slide the frame outward with it lifted to remove the front tower frame from the Server.



5. Remove all the cables connected to the SCSI-BP and do steps 5 to 8 in Subsection 4.10.7 above.



6. Install a new SCSI-BP in the reverse procedure.

4.10.9 Replacement of Main Board or Connect Board on 140Rd-4 Chassis

1. Make sure that the power of the Server is off, and disconnect the AC cables from all the power units.
2. Remove the Processor and Memory Boards from the Server.
3. Remove the rear access cover, front access cover, PCI access cover, fans, fan cage, and power cage.
4. Do steps 4 and 5 in Subsection 4.10.5 to separate the I/O Board from the Main Board.

To replace the Main or Connect Board, the electronics bay does not need to be removed from the Server but the I/O Board must be separated from the Main Board with the ejectors.

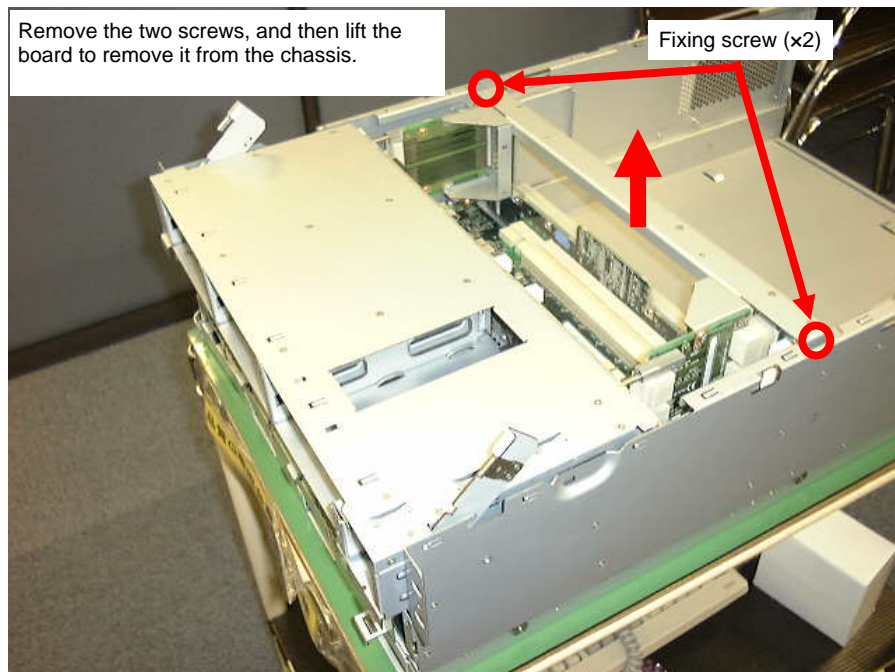
5. For the Server of the 3.5-inch device model (3HDD model), pull out the SCSI cables for 3.5-inch devices from the HDD cage.

To replace the Main or Connect Board, the power cables for 3.5-inch devices does not need to be pulled out from the HDD cage but the SCSI cables must be pulled out.

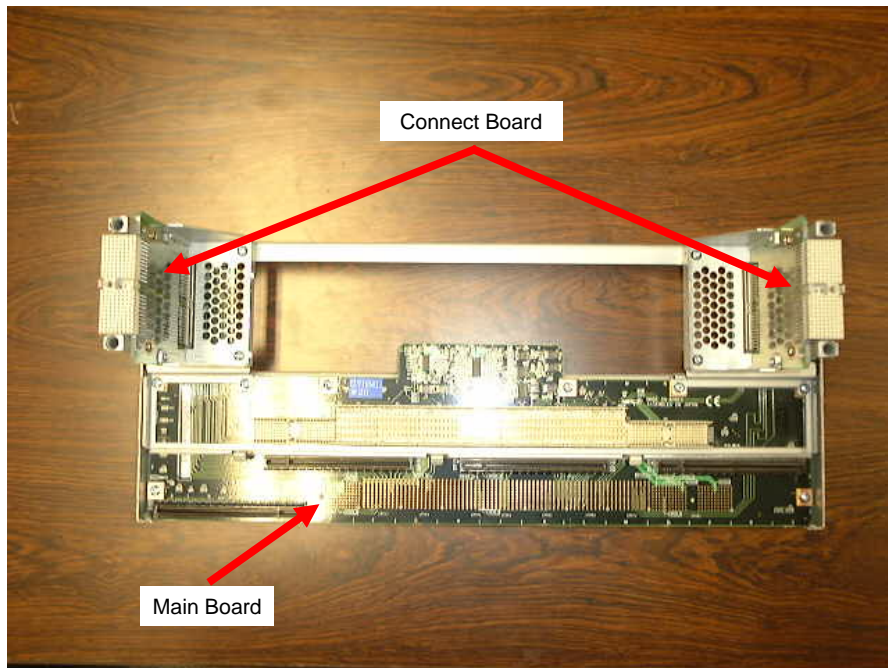
6. Do step 5 in Subsection 4.10.7 to separate the SCSI-BP from the Connect Board.

To replace the Main or Connect Board, the HDD cage does not need to be removed from the Server but the SCSI-BP must be separated from the Connect Board with the ejectors.

7. Remove the screws (2) fixing the Main Board to the Server. Then pull out the Main Board, Connect Board, and brackets upward to remove them from the Server.

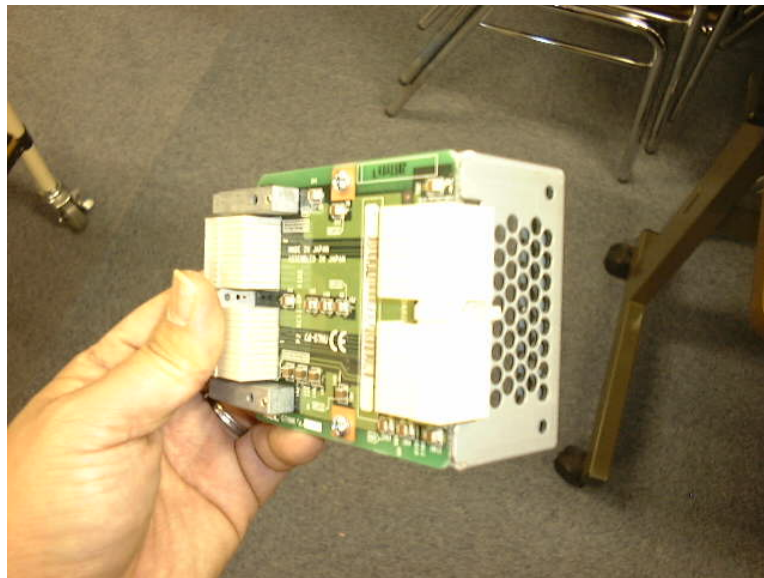


[Removed Main and Connect Boards]



8. Remove the screws (2 at each of the left and right sides) fixing the Connect Board and pull out the board from the Main Board.

[Pull-out Connect Board]



9. Do the reverse procedure for the installation.

While the Connect Board is connected to the Main Board, check that no connector pins risk being caught.

4.10.10 Replacement of Main Board or Connect Board on 140He Chassis

1. Make sure that the power of the Server is off, and disconnect the AC cables from all the power units.
2. Remove the Processor and Memory Boards from the Server.
3. Remove the rear access cover, PCI access cover, fan cover, fans (two fans in the additional HDD cage and six fans in the standard HDD cage), fan cage, and power cage.
4. Do steps 4 and 5 in Subsection 4.10.5 to separate the I/O Board from the Main Board.

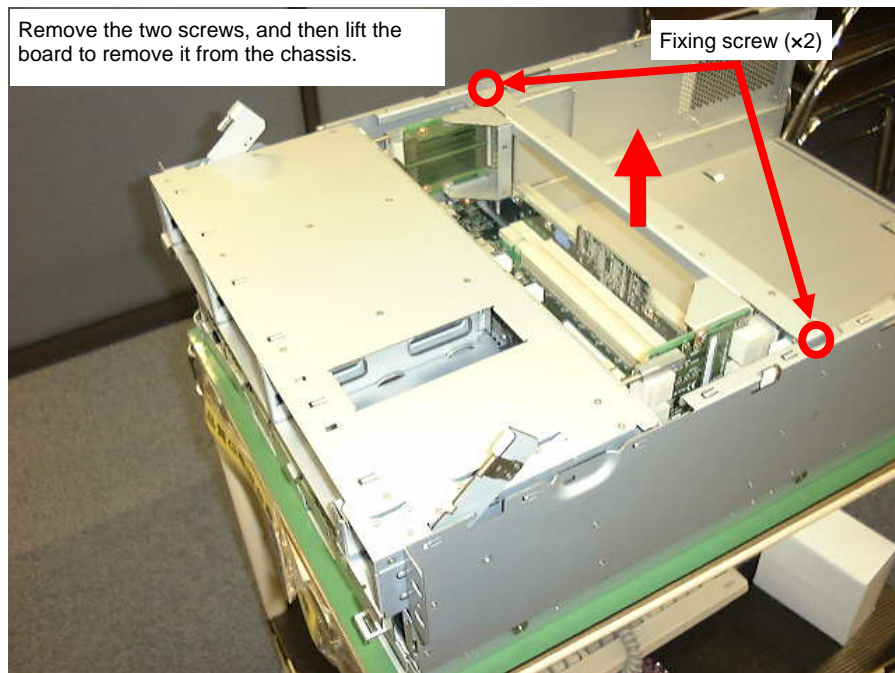
To replace the Main or Connect Board, the electronics bay does not need to be removed from the Server but the I/O Board must be separated from the Main Board with the ejectors.

5. Do steps 1 to 5 in Subsection 4.10.8.

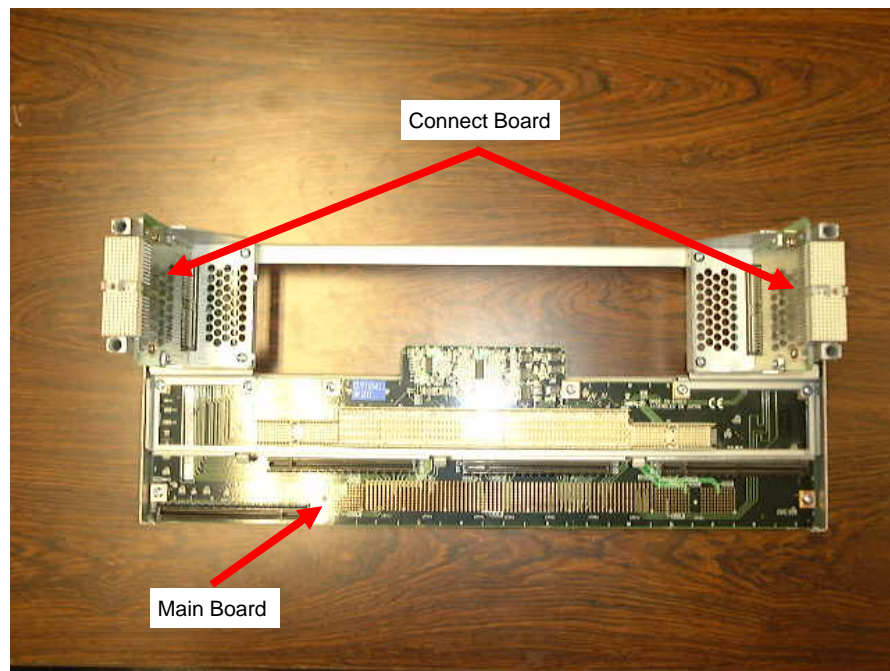
To replace the Main or Connect Board, the HDD cage does not need to be removed from the Server but the SCSI-BP must be separated from the Connect Board with the ejectors.

6. Remove the screws (2) fixing the Main Board to the Server. Then pull out the Main Board, Connect Board, and brackets upward to remove them from the Server.

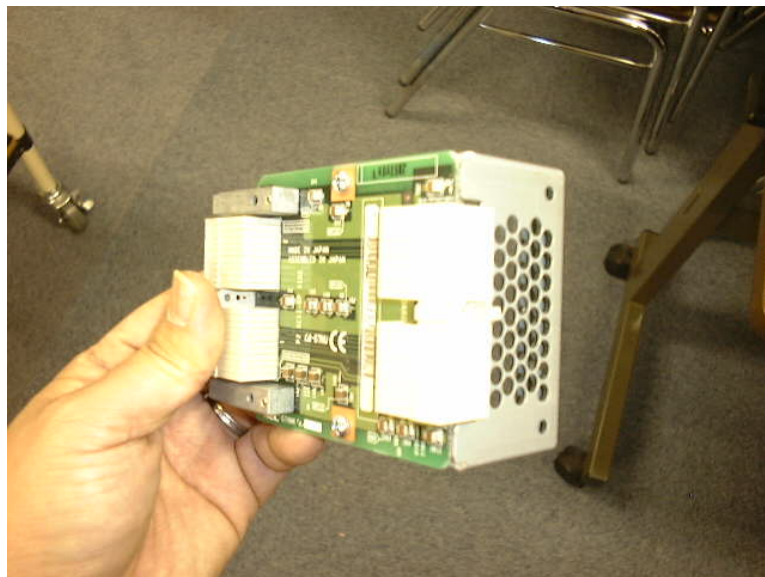
The figure shows the Server mounted on the 140Rd-4 chassis. On the 140He chassis, the Server is only mounted longitudinally. The locations of the fixing screws are the same.



[Removed Main and Connect Boards]



7. Remove the screws (2 at each of the left and right sides) fixing the Connect Board and pull out board from the Main Board.



[Pull-out Connect Board]

8. Do the reverse procedure for the installation.

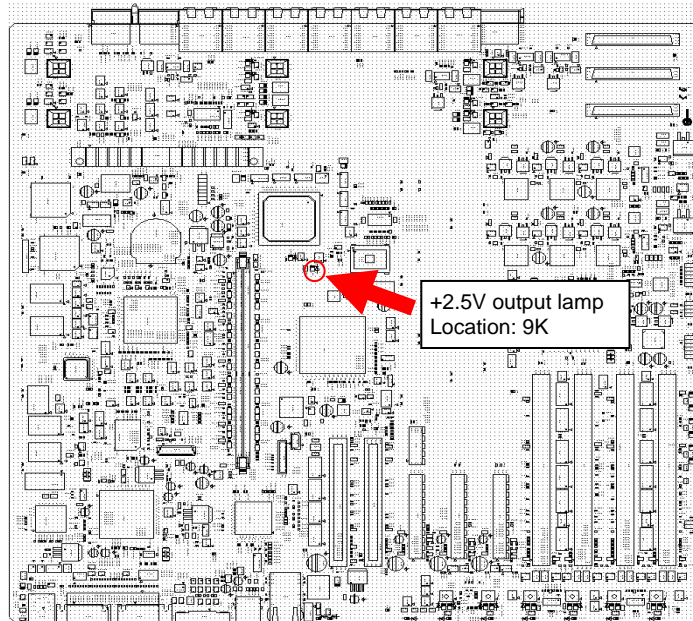
While the Connect Board is connected to the Main Board, note sufficiently that any connector pins may not be caught.

4.10.11 Replacement of Battery of DIMM for On-board RAID

Before replacing the battery or a DIMM, make sure that the +2.5 VDC output lamp on the I/O Board is off if the AC cables are disconnected from the Server.

If the lamp is on, turn on the DC power of the Server once and run the POST before the replacement. Then turn off the power of the Server again, disconnect the AC cables, and make sure that +2.5 VDC output lamp on the I/O Board is off.

Before the +2.5 VDC output lamp can be checked, the rear access cover must be removed. The lamp is installed below the power cage.



Do not use any unauthorized batteries and DIMMs provided for other units.

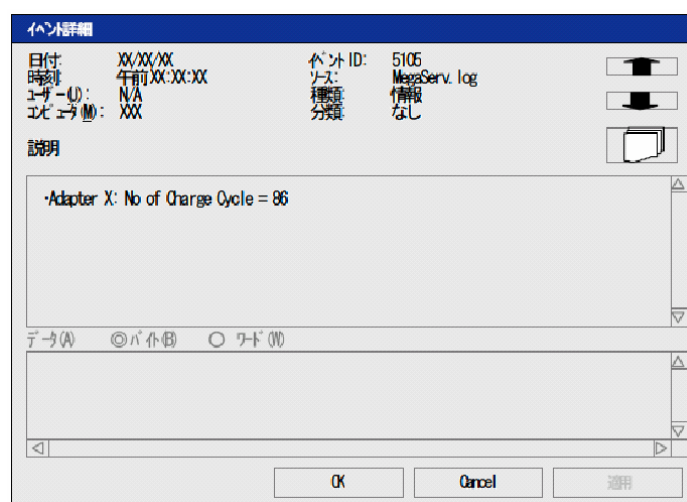
The defined battery life is two years or 500 charge cycles. If a battery is charged for more than 500, it is determined that its life has come. Then replace the battery.

[Procedure of checking battery charging count]

1. Checking using the Windows event viewer

Start Windows to display the event log (application) of the event viewer on the screen.

Find the latest log of source "MegaServ.log" and event "5105" from the displayed log list. Displaying the detailed event information allows the following screen to be displayed. To check the charge cycles on the event viewer, PowerConsolePlus must be installed.

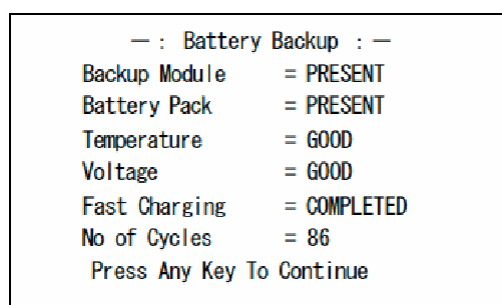


[Adapter X: No of Charge Cycle =] in the Description item indicates the number of charge cycles. (The above screen shows that the number of charge cycles is 86.)

2. Checking using the MegaRAID Configuration Utility

After starting the MegaRAID Configuration Utility, select [Objects]→[Adapter]→[Battery Information]. Then the battery status appears as follows.

[No of Cycles =] indicates the number of charge cycles. (The above screen shows that the number of charge cycles is 86.)



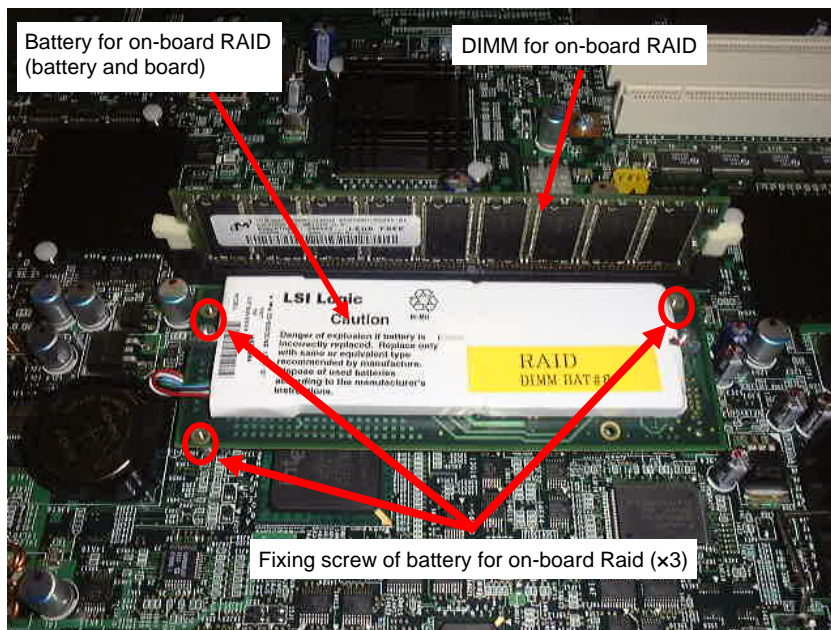
[Replacement]

1. Make sure that the power of the Server is off, disconnect the AC cables from all the power units and remove the rear access, front access and PCI access covers.

On the 140He chassis, also remove the fan cover from the Server.

2. Remove the fans, fan cage and power cage.
3. Remove the battery and DIMMs for onboard RAID installed on the I/O Board.

To remove the onboard RAID battery, remove the screws (3) fixing the battery and lift the battery module (containing the battery and printed-circuit board) to remove it from the I/O Board.



IMPORTANT: The battery is in the power distribution status if it is removed from the I/O Board.

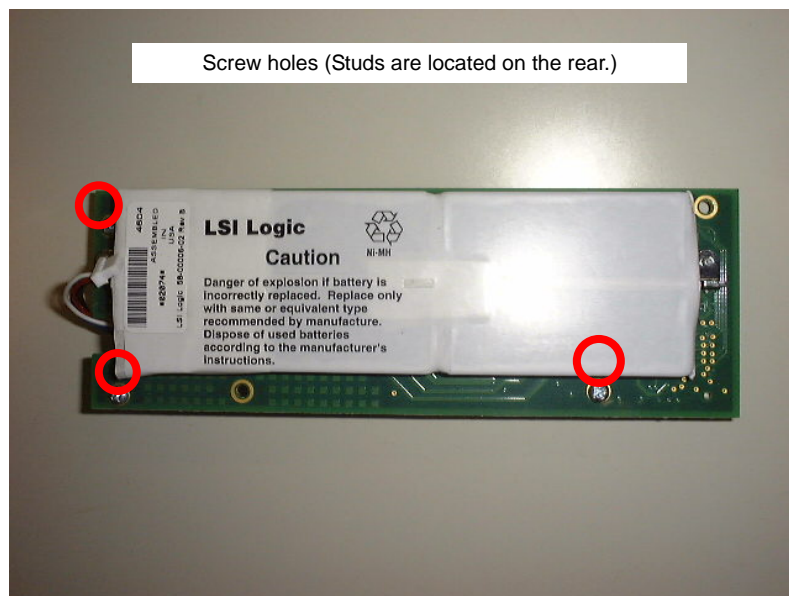
Do not put the removed battery on a metallic plate to prevent the components on the rear face from being short-circuited.

4. Pull out the cable from the removed battery (to prevent improper contacts).



5. Remove the studs attached to the new battery that will be installed in the Server.

There are three studs, each of which is fixed to the battery with screws. Remove the screws to remove the studs from the battery. (The removed studs and screws are not used any more.)



6. Connect the cable to the new battery that will be installed in the Server.

Note that the connector cannot be inserted incorrectly.



7. Fill in the replacement date on labels (2) included in the package for maintenance devices. Put one of the labels on the battery.

Put the other label near the nameplate of the Server (over the old onboard RAID battery label.)
8. Install the battery and DIMMs on the I/O Board.

Use the screws removed in step 3 for fixing the battery.

(The package for maintenance devices includes spare screws.)
9. Install the power cage, fan cage, fans and all the covers to recover the original state.
10. Connect the power cables to the power units, turn on the power of the Server, and start the MegaRAID Configuration Utility.

Select [Objects]→[Adapter]→[Reset Battery Charge Counter] from the Top menu and select [Yes] to clear the charging cycles.

NOTE: The new battery is not charged. The battery is fully charged by continuous operation about six hours after the Server is started.

4.10.12 Replacement of PCI Board

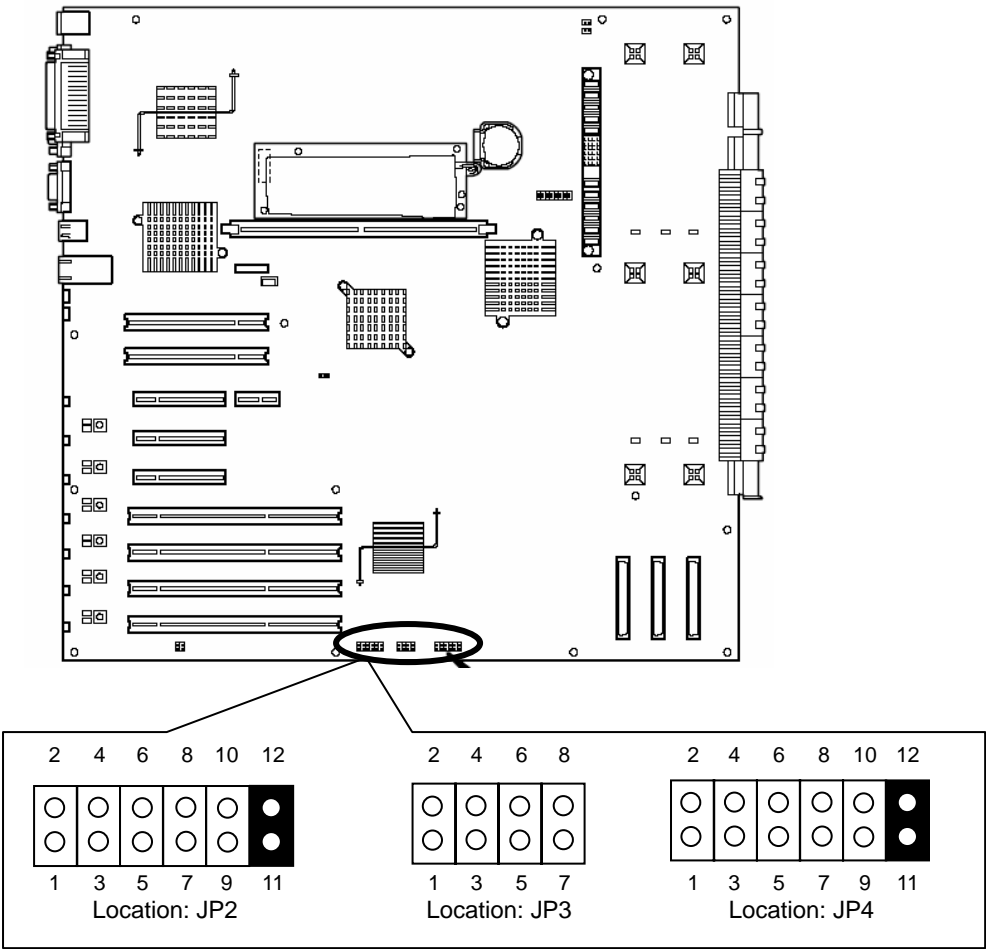
Refer to the User's Manual for the replacement procedure and notes on the PCI Board.

4.11 Jumper Settings

The jumper pins in the Server are located on the I/O Board and Power-BP.

The jumpers and their setting values are described below.

[I/O Board: G7HRH]



<Settings of jumpers on I/O Board (G7HRH)>

[Location: JP2]

Pin	Function name	Default	Remarks
1-2	BMC Boot BlockWrite Enable	Open	
3-4	FRB3 Timer Disable	Open	
5-6	BMC Force Update	Open	
7-8	BMC DNS Setting Clear Enable	Open	
9-10	Test LED Enable	Open	
11-12	(Not used)	Short	

[Location: JP3]

Pin	Function name	Default	Remarks
1-2	BIOS Select	Open	Short prohibited
3-4	BIOS Image Forced Mode	Open	Short prohibited
5-6	BIOS Boot Block Write Enable	Open	
7-8	TEST Mode2	Open	

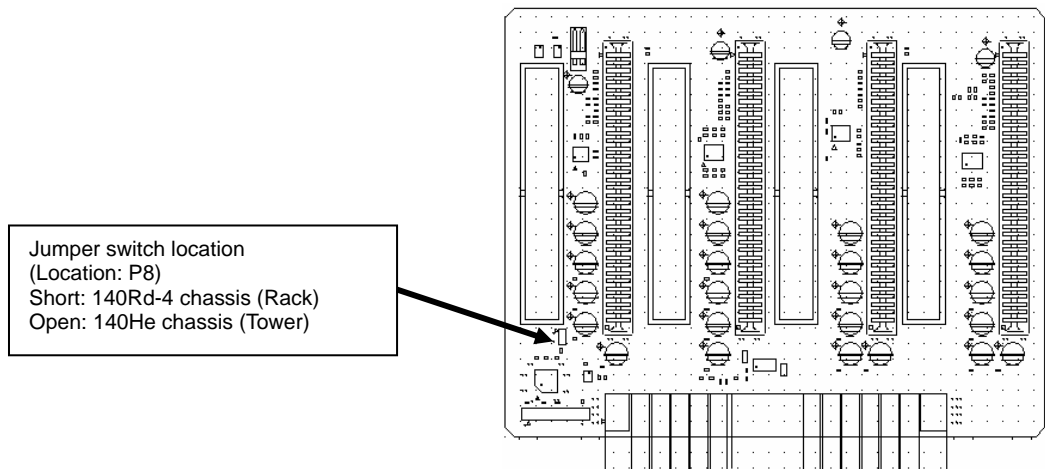
[Location: JP4]

Pin	Function name	Default	Remarks
1-2	CMOS Clear	Open	
3-4	Password Clear	Open	
5-6	Inspection Mode	Open	
7-8	TEST Mode11	Open	
9-10	BIOS Recovery	Open	
11-12	(Not used)	Short	Short

Test Mode1/2

Mode2	Mode1	Function
H	H	Normal
H	L	Debug Menu
L	H	Detailed SEL
L	L	Other

<Settings of jumpers on Power-BP (G7HMM)>



5. System BIOS

5.1 BIOS SETUP

When the power of the Server is turned on, POST is executed to display a full screen logo (default BIOS SETUP settings). If an error is detected during the execution of POST, the test execution screen appears instead to indicate the error.

The screen switching can be modified by the ESC key or the setting of BIOS SETUP.

To change the setting, press the <F2> key during the execution of POST to boot BIOS SETUP and select the menu item to be changed in the menu by using arrow keys appropriately. Refer to the User's Guide of the Server for details of BIOS SETUP.

For POST error messages and the consequent actions to take, see Chapter 8.

5.2 Duplication of System BIOS

The system BIOS of the Server is duplicated to allow two BIOSs to be operated, which are called primary BIOS and secondary BIOS.

In the normal operation, the primary BIOS is booted to operate the system. At the occurrence of a data error in the primary BIOS or a fault of the device in which the system BIOS is stored, the secondary BIOS is booted as soon as possible to operate the system. This operation can avoid system shutdown caused by a malfunction of the system BIOS.

Both the primary and secondary BIOSs installed in the Server at the shipment are the system BIOS of the latest version. Each system BIOS update makes the secondary BIOS updated to be the primary BIOS.

Then the switched primary BIOS is booted to operate the system.

For the actions taken at the occurrence of a data error in the primary BIOS or a fault of the device in which the system BIOS is stored, see Chapter 8.

6. RAS Function

6.1 Logging

When an event (including fan fault, excess temperature, abnormal voltage, memory error, and internal detection error) occurs, the system provides firmware logging and lights amber the corresponding LEDs. Further, ESMPro views the log to make proper troubleshooting.

6.2 Memory Degrading Operation

The system is designed to be operable under memory degrading.

If a memory error is detected during POST, the system is started with the defected memory block cut out.

The memory degrading operation can be known by proper message display by POST, lighting amber of the relevant error LED, and indication by BIOS SETUP.

6.3 Temperature Monitoring

Abnormally high temperature, warning high temperature, warning low temperature, and abnormally low temperature can be set as temperature errors. If a temperature error occurs, logging, warning, or system shutdown occurs before OS boot. After the OS is booted, the action taken against a temperature error depends on the ESMPro setting.

6.4 Watchdog Timer (WDT)

The watchdog timer is normally installed in the system. Depending on the setting of the watchdog timer, the clearing process may not be done within the defined period. Then the system is run out to cause a panic to occur.

7. Remote Management Function

The Baseboard Management Controller (BMC), the system management LSI normally installed in the Server, can be used to monitor the status of internal hardware including power supplies, fans, and temperature.

In addition, the Server can be managed remotely through a management network to provide hardware status monitoring and KVM (keyboard, video, and mouse) control.

Refer to the User's Guide for the detailed description, notes, and setup procedure of the remote management function.

If an error occurs during the use of the remote management function, the relevant error dialog appears on the management PC. For the error messages and the actions taken against the messages, see Chapter 8.

8. Troubleshooting

When a fault occurs, it is indicated in several ways.

Take the proper action against a fault depending on each of the indications.

"Troubleshooting" in the User's Guide of the Server includes check lists on faults. See the checklists to help you.

Take the action described in the item related to the fault that occurred, if any.

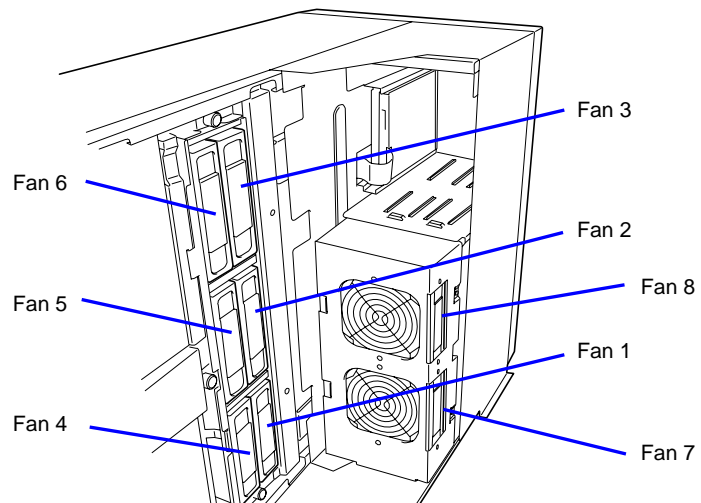
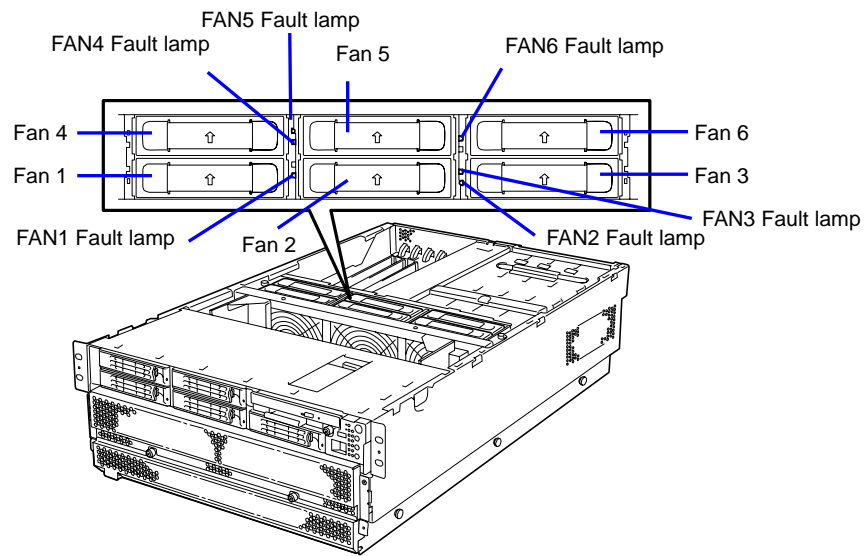
8.1 Error LED Indications

When an hardware error occurs, some of the LEDs on the front panel and/or devices light or blink amber. Replace the device in which the error occurs following the description in section 4.3.

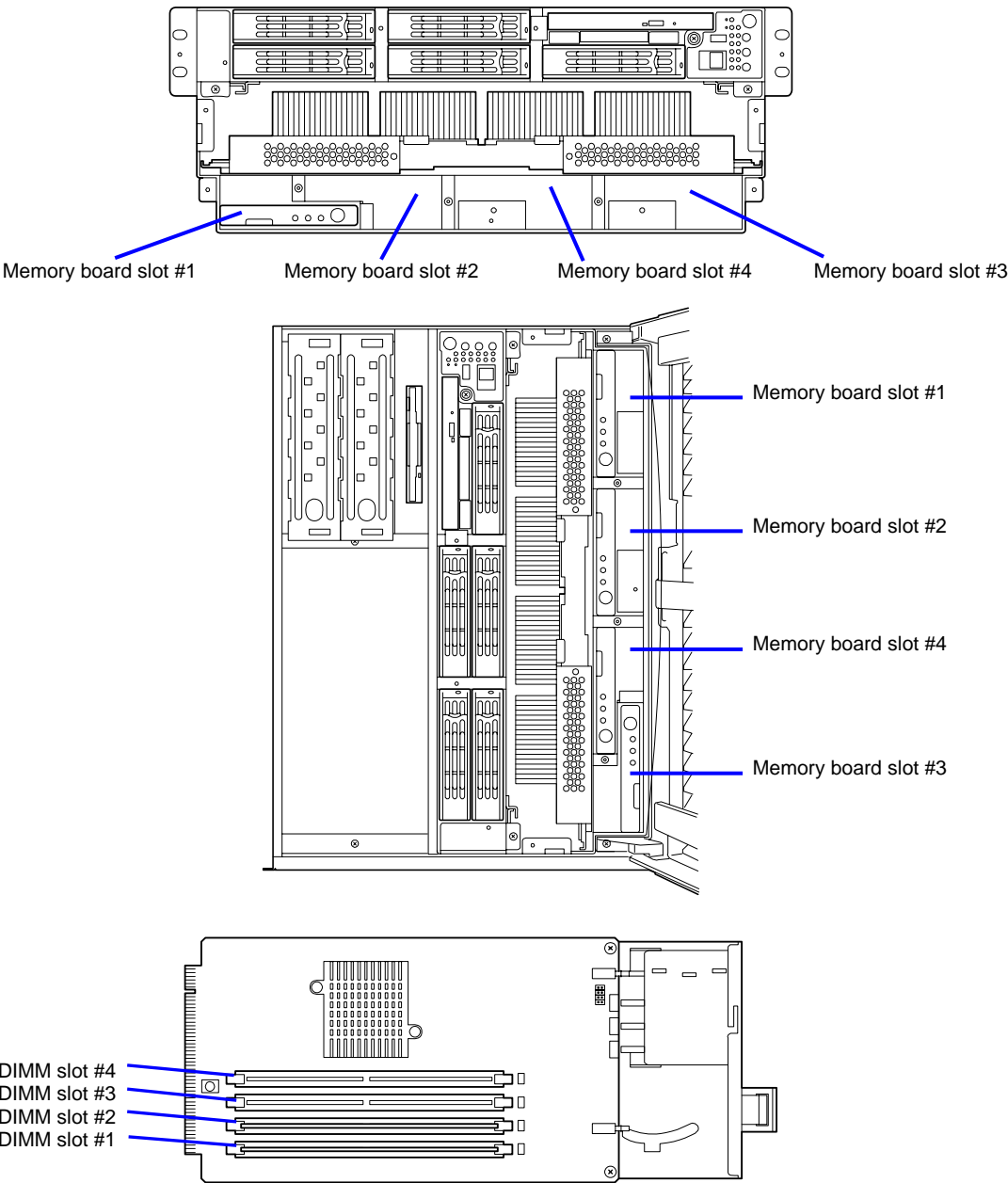
8.2 Locations of Devices Appearing in Error Messages

The locations of installed devices appearing in error messages are as follows:

8.2.1 Fan

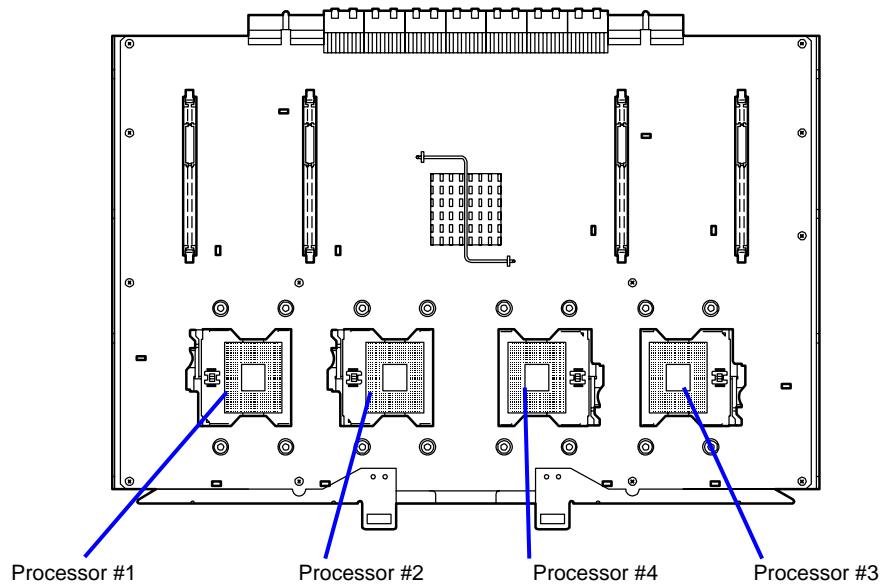


8.2.2 Memory Board and DIMM



	Memory board slot #1		Memory board slot #2		Memory board slot #3		Memory board slot #4	
1	DIMM #1	DIMM	DIMM #1	DIMM	DIMM #1	DIMM	DIMM #1	DIMM
2	DIMM #2	Group #1	DIMM #2	Group #3	DIMM #2	Group #5	DIMM #2	Group #7
3	DIMM #3	DIMM	DIMM #3	DIMM	DIMM #3	DIMM	DIMM #3	DIMM
4	DIMM #4	Group #2	DIMM #4	Group #4	DIMM #4	Group #6	DIMM #4	Group #8

8.2.3 Processor and VRM



8.3 POST Error Messages

When the power of the server is turned on, POST (Power On Self-Test) automatically runs to check the I/O board, memory board, processor, keyboard, and mouse. When POST detects an error, it displays an error message on the display unit screen. (Some error messages are displayed along with the action to be taken.)

If the error message listed in the table is displayed on the screen, take a measure according to "Action" column. When several actions are to be taken, determine the action appropriately.

On-screen message		Action
0200	Failure Fixed Disk	<ul style="list-style-type: none"> • Replace the hard disk drive. • Replace the cable. • Replace the HDD cage. • Replace the I/O board.
0210	Stuck Key	<ul style="list-style-type: none"> • Connect the keyboard connector again, and restart the system. • Replace the keyboard. • Replace the I/O board.
0211	Keyboard error	
0212	Keyboard Controller Failed	<ul style="list-style-type: none"> • Connect the keyboard connector again, and restart the system. • Replace the keyboard. • Replace the I/O board.
0213	Keyboard locked – Unlock key switch	<ul style="list-style-type: none"> • Check if the key switch has been locked (being pushed). • Replace the keyboard. • Replace the I/O board.
0220	Monitor type does not match CMOS – Run SETUP	<ul style="list-style-type: none"> • Start Setup to reconfigure the monitor. • Replace the I/O.
0230	System RAM Failed at offset	<ul style="list-style-type: none"> • Check if ECC 1-bit/multi-bit error is recorded in the system event log. If the error is recorded, replace the relevant DIMMs in pair. After replacement, start SETUP and execute [Clear DIMM Error]. • Replace the memory board. • Replace the I/O board.
0231	Shadow Ram Failed at offset	
0232	Extended RAM Failed at address line	
0250	System battery is dead – Replace and run SETUP	Replace the lithium battery. After replacement, start SETUP to set the current time and date.
0251	System CMOS checksum bad - Default configuration used	This error may occur if the system is forcibly shutdown during POST. Start BIOS SETUP to reconfigure the system.
0252	Password checksum bad - Passwords cleared	Start BIOS SETUP to set the password again.
0260	System timer error	Replace the I/O board.
0270	Real time clock error	Replace the I/O board.
0271	Check date and time Settings	Start BIOS SETUP to set the date and time again. Replace the I/O board.

On-screen message		Action
0280	Previous boot incomplete - Default configuration used	The system will start with "Uncached" state. Start BIOS SETUP to reconfigure the system.
02B0	Diskette drive A error	Check the FDD cable connection. Replace the FDD. Replace the FDD cable. Replace the CD/FD board.
02B1	Diskette drive B error	Check the settings of BIOS SETUP. Replace the I/O board.
02B2	Incorrect drive A type – run SETUP	Start SETUP to check if [Floppy Options] - [Diskette A:] is set to [1.44/1.25Mb 3 1/2"]. Replace the FDD.
02B3	Incorrect drive B type – run SETUP	Check the settings of BIOS SETUP. Replace the I/O board.
02D0	System cache error –Cache disabled	Replace the processor. Replace the processor board.
02D1	System Memory exceeds the CPU's caching limit	Replace the processor. Replace the processor board.
02F5	DMA test failed	Replace the I/O board.
02F6	Software NMI Failed	
02F7	Fail-safe Timer NMI Failed	
0500	Expansion ROM not initialized PCI Slot 01	Set [Option ROM] for the PCI slot to which the boot device is connected to "Enabled", and "Disabled" for other slots. Replace the PCI board. Replace the I/O board.
0501	Expansion ROM not initialized PCI Slot 02	
0502	Expansion ROM not initialized PCI Slot 03	
0503	Expansion ROM not initialized PCI Slot 04	
0504	Expansion ROM not initialized PCI Slot 05	
0505	Expansion ROM not initialized PCI Slot 06	
0506	Expansion ROM not initialized PCI Slot 07	
0507	Expansion ROM not initialized PCI Slot 08	
0611	IDE configuration Changed	Replace the I/O board. Replace the connected devices.
0613	COM A configuration changed	
0614	COM A config. Error - device disabled	
0615	COM B configuration changed	
0616	COM B config. Error - device disabled	
0617	Floppy configuration changed	
0618	Floppy config. Error - device disabled	
0619	Parallel port Configuration changed	
061A	Parallel port config. Error - device disabled	

On-screen message		Action
0B00	Rebooted during BIOS boot at post Code	Replace the I/O board.
0B1B	PCI System Error on Bus/Device/Function	Replace the I/O board. Replace the PCI board.
0B1C	PCI Parity Error on BUS/Device/Function	
0B22	Processors are installed out of order.	Replace the processor.
0B28	Unsupported CPU detect on CPU Slot1	
0B29	Unsupported CPU detect on CPU Slot2	
0B2A	Unsupported CPU detect on CPU Slot3	
0B2B	Unsupported CPU detect on CPU Slot4	
0B30	Fan 1 Alarm occurred.	Clean the fan. Replace the fan.
0B31	Fan 2 Alarm occurred.	
0B32	Fan 3 Alarm occurred.	
0B33	Fan 4 Alarm occurred.	
0B34	Fan 5 Alarm occurred.	
0B35	Fan 6 Alarm occurred.	
0B36	Fan 7 Alarm occurred.	
0B37	Fan 8 Alarm occurred.	
0B50	Processor#1 with error taken off line.	Replace the processor. Replace the processor board. After replacement, start SETUP and execute [Clear CPU Error]. Update the system with the latest BIOS.
0B51	Processor#2 with error taken off line.	
0B52	Processor#3 with error taken off line.	
0B53	Processor#4 with error taken off line.	
0B5F	Forced to use CPU with error.	
0B60	DIMM group #1 has been disabled	Insert the DIMM again. Check if ECC 1-bit/multi-bit error is recorded in the system event log. If the error is recorded, replace the relevant DIMMs in pair. If the failed DIMMs cannot be identified, replace all the DIMMs in the relevant group. Replace the memory board. After the replacement, start SETUP and execute [Clear DIMM Error].
0B61	DIMM group #2 has been disabled	
0B62	DIMM group #3 has been disabled	
0B63	DIMM group #4 has been disabled	
0B64	DIMM group #5 has been disabled	
0B65	DIMM group #6 has been disabled	
0B66	DIMM group #7 has been disabled	
0B67	DIMM group #8 has been disabled	
0B70	The error occurred during temperature sensor reading	Replace the front panel. Replace the CPU. Replace the Processor board. Replace the I/O board.
0B71	System Temperature out of the range	Set the room temperature in the range between 10 to 35°C. Check the system event log to identify the thermal sensor which has detected the out-of-range temperature.

On-screen message		Action
0B74	The error occurred during voltage sensor reading	Replace the I/O board.
0B75	System Voltage out of the range	Check the system event log to identify the voltage sensor which has detected the out-of-range voltage.
0B78	The error occurred during fan sensor	Replace the I/O board.
0B7C	The error occurred during the redundant power module confirmation	Replace the power supply unit.
0B7D	The normal operation can't be guaranteed with use of only one PSU	Check the AC cord connection. Replace the power supply unit.
0B80	BMC Memory Test Failed.	Power off the system. Disconnect the power cable and connect it again, cycle the power, then restart the system. Replace the I/O board.
0B81	BMC Firmware Code Area CRC check failed.	
0B82	BMC Core hardware failed.	
0B83	BMC IBF or OBF check failed.	
0B8A	BMC SEL area full	Check the system event log, and then clear it.
0B8B	BMC progress check timeout	Power off the system. Disconnect the power cable and connect it again, cycle the power, then restart the system. Replace the I/O board.
0B8C	BMC command access faild	
0B8D	Could not redirect the console - BMC Busy	
0B8E	Could not redirect the console - BMC Error	
0B8F	Could not redirect the console - BMC Parameter Error	
0B90	BMC PlatformInformation Area Corrupted.	
0B91	BMC Update firmware corrupted	
0B92	Internal Use Area of BMC FRU corrupted	
0B93	BMC SDR Repository Empty.	
0B94	IPMB signal lines do not respond.	
0B95	BMC FRU device failure.	Power off the system. Disconnect the power cable and connect it again, cycle the power, then restart the system. Replace the I/O board.
0B96	BMC SDR Repository Failure	
0B97	BMC SEL device failure.	
0B98	BMC RAM test error	
0B99	BMC Fatal hardware error	
0B9A	BMC not responding	
0B9B	Private I2C bus not responding	
0B9C	BMC internal exception	
0B9D	BMC A/D timeout	
0B9E	SDR repository	
0B9F	SEL corrupt	
0BB0	SMBIOS – SROM data read error	Power off the system. Disconnect the power cable and connect it again, cycle the power, then restart the system. Replace the I/O board. Replace the relevant board.
0BB1	SMBIOS – SROM data read error	

On-screen message		Action
0BC0	POST detected startup failure of CPU#1	Check the CPU installation. Replace the CPU. Replace the processor board. Replace the I/O board. After replacement, start SETUP and execute [Processor Retest].
0BC1	POST detected startup failure of CPU#2	
0BC2	POST detected startup failure of CPU#3	
0BC3	POST detected startup failure of CPU#4	
0BD0	1st SMBus address not acknowledged.	Replace the I/O board. Replace the PCI Option card.
0BD1	1st SMBus device Error detected.	
0BD2	1st SMBus timeout.	
0BD3	2nd SMBus address not acknowledged.	Replace the processor board. Replace the I/O board. Replace the memory board. Replace the DIMM.
0BD4	2nd SMBus device Error detected.	
0BD5	2nd SMBus timeout.	
0BD6	3rd SMBus address not acknowledged.	Check the power supply unit connection or replace the power supply unit. Replace the Power-BP. Replace the I/O board.
0BD7	3rd SMBus device Error detected.	
0BD8	3rd SMBus timeout.	
0BD9	4th SMBus address not acknowledged.	Replace the processor. Replace the processor board. Replace the I/O board.
0BDA	4th SMBus device Error detected.	
0BDB	4th SMBus timeout.	
0BDC	5th SMBus address not acknowledged.	Replace the front panel. Replace the SCSI-BP. Replace the I/O board.
0BDD	5th SMBus device Error detected.	
0BDE	5th SMBus timeout.	
0BE8	IPMB address not acknowledged	Replace the front panel. Replace the SCSI-BP. Replace the I/O board.
0BE9	IPMB device error detected	
0BEA	IPMB timeout	
8120	Unsupported DIMM detected in DIMM group #1	Replace the DIMMs in relevant group.
8121	Unsupported DIMM detected in DIMM group #2	
8122	Unsupported DIMM detected in DIMM group #3	
8123	Unsupported DIMM detected in DIMM group #4	
8124	Unsupported DIMM detected in DIMM group #5	
8125	Unsupported DIMM detected in DIMM group #6	
8126	Unsupported DIMM detected in DIMM group #7	Replace the DIMMs in relevant group.
8127	Unsupported DIMM detected in DIMM group #8	
8130	Mismatch DIMM detected in DIMM group #1	Use the same type of DIMMs in the relevant group.
8131	Mismatch DIMM detected in DIMM group #2	

On-screen message		Action
8132	Mismatch DIMM detected in DIMM group #3	
8133	Mismatch DIMM detected in DIMM group #4	
8134	Mismatch DIMM detected in DIMM group #5	
8135	Mismatch DIMM detected in DIMM group #6	
8136	Mismatch DIMM detected in DIMM group #7	
8137	Mismatch DIMM detected in DIMM group #8	
8140	DIMM group #1 with error is enabled	Replace the DIMMs in relevant group.
8141	DIMM group #2 with error is enabled	
8142	DIMM group #3 with error is enabled	
8143	DIMM group #4 with error is enabled	
8144	DIMM group #5 with error is enabled	
8145	DIMM group #6 with error is enabled	
8146	DIMM group #7 with error is enabled	
8147	DIMM group #8 with error is enabled	
8150	NVRAM cleared by Jumper	Set the jumper switch as before after turning off the power.
8151	Password Cleared by Jumper	
8160	Mismatch processor Speed detected on Processor 1	Check the frequency of CPU. Replace the CPU of rated frequency.
8161	Mismatch processor Speed detected on Processor 2	
8162	Mismatch processor Speed detected on Processor 3	
8163	Mismatch processor Speed detected on Processor 4	
8170	Processor 1 not operating at intended frequency	Check the frequency of CPU. Replace the CPU of rated frequency.
8171	Processor 2 not operating at intended frequency	
8172	Processor 3 not operating at intended frequency	
8173	Processor 4 not operating at intended frequency	
817F	All Processor not operating at intended frequency	Check the frequency of CPU. Replace the CPU of rated frequency.
8200	Online Spare Memory was not ready	Use DIMMs of the same type. The dedicated maintenance parts are specified for online spare memory.
8201	Mirroring Memory was not ready.	Use DIMMs of the same type. The dedicated maintenance parts are specified for online spare memory.
8202	Memory RAID was not ready	Check the memory capacity and type for all the DIMMs. Check also if they are correctly installed.

On-screen message		Action
8300	Secondary BIOS is corrupted	Update the system with the latest BIOS. Replace the I/O board.

8.4 Beep Codes

If an error occurs during the POST, the server beeps, indicating the type of error.

Each number indicates the number of short beeps, and a hyphen indicates a pause. For example, the beep interval 1-3-1-3 indicates 1 beep, pause, 3 beeps, pause, 1 beeps, pause, and 3 beeps notifying that the keyboard controller error.

Beep code	Description	Action (module to be replaced)
1-2	Video configuration fails	If nothing is displayed, check if the connector of the display unit is properly connected. If the error persists, replace the I/O board.
1-2	OPTION ROM Checksum error	If an expansion of Option ROM for additionally installed PCI board is not displayed, check if the PCI board is properly installed. If the error persists, replace the I/O board or PCI board.
1-2-2-3	ROM checksum error	Clear CMOS. Replace the I/O board.
1-3-1-1	DRAM refresh test error	Check if the DIMM and memory boards are properly connected. If the error persists, replace DIMM, memory board or I/O board.
1-3-1-3	Keyboard controller test error	Disconnect the keyboard and connect it again. If the error persists, replace the I/O board.
1-3-3-1	Memory is not detected. Or, DIMM type is incorrect.	Check if the DIMM and memory boards are properly connected. If the error persists, replace DIMM, memory board, or I/O board.
1-3-4-1	DRAM Address error	Check if the DIMM and memory boards are properly connected. If the error persists, replace DIMM, memory board, or I/O board.
1-3-4-3	DRAM test Low Byte error	Check if the DIMM and memory boards are properly connected. If the error persists, replace DIMM, memory board, or I/O board.
1-4-1-1	DRAM test High Byte error	Check if the DIMM and memory boards are properly connected. If the error persists, replace DIMM, memory board, or I/O board.
1-5-1-1	Processor fails to start.	Check if the processor and processor board are properly installed. If the error persists, replace the processor, processor board, or I/O board.
1-5-2-2	No processor error	Check if the processor and processor board are properly installed. If the error persists, replace the processor, processor board, or I/O board.
1-5-2-3	Processors of various types and voltages coexist.	Check if the additionally installed processor is supported by the server. Check if the processor and processor board are properly installed. If the error persists, replace the processor, processor board, or I/O board.
1-5-4-4	Power failure	Check if internal boards are connected properly. I/O board, front panel board, or processor board may be faulty. Identify the failing board.
2-2-3-1	Unexpected interrupt test error	Replace the I/O board.

NOTE: Beep code 1-5-4-2 informs you that AC power supply is interrupted due to power failure or momentary

voltage drop and the system is restarted. This is not an error.

8.5 Operation of Battery and DIMM for Onboard RAID

8.5.1 Error Indication by POST

The information on onboard RAID is normally indicated by POST as follows:

```
LSI MegaRAID BIOS                      Version XXX (Build XXX XX XXXX)
Copyright(C) 2005 LSI Logic Corp.
HA-X (Bus XX  Dev XX) MegaRAIS SCSI 320-2E
Standard FW XXXX DRAM = 256MB (SDRAM)
Battery module is present on adapter
Channel-0 ID-14 -- XXX  XXXXX
Channel-1 ID-14 -- XXX  XXXXX
X Logical Drive(s) found on the host adapter.
X Logical Drive(s) handled by BIOS
Press <Ctrl><M> or <Enter> to Run Config Utility
Or Press <Ctrl><H> for WebBIOS
```

The actions taken against error messages other than above are as follows:

- Error messages about the battery

The battery for onboard RAID may be defected. Replace the battery for onboard RAID following the description in Subsection 4.10.11.

If the similar message appears after the replacement, replace the I/O Board.

- Error messages about the memory

A DIMM for onboard RAID may be defected. Replace the defected DIMM for onboard RAID following the description in Subsection 4.10.11.

If the similar message appears after the replacement, replace the I/O Board.

- Error messages about the RAID key

The RAID key, a device on the I/O Board, may be defected. Replace the I/O Board.

- Error messages about the HDD

An HDD may be defected. Check the LEDs on the HDDs to replace the defected HDD.

8.5.2 Error Messages by Windows Event Log

When Power Console Plus is installed in the Server, the onboard RAID log can be checked by the event log (application) of the Event Viewer. Isolate the suspicious device depending on the error type to replace the device.

8.5.3 Battery Status Check by MegaRAID Configuration Utility

Start the MegaRAID Configuration Utility and select [Objects]→[Adapter]→[Battery Information]. Then the battery status appears as follows.

```
— : Battery Backup : —  
Backup Module    = PRESENT  
Battery Pack     = PRESENT  
Temperature      = GOOD  
Voltage          = GOOD  
Fast Charging    = COMPLETED  
No of Cycles     = 86  
Press Any Key To Continue
```

Item	Meaning	Indication	Action
Back Up Module	Presence of battery module	PRESENT	None
		ABSENT	Check the installation of the battery module. Replace the battery module.
Battery Pack	Presence of battery pack	PRESENT	None
		ABSENT	Check the installation of the cable coming out of the battery pack. Replace the battery module.
Temperature	Temperature status	GOOD	None
		HIGH	Check fans. Replace battery module.
Voltage	Voltage status	GOOD	None
		BAD	Check the installation of the battery module. Replace battery module.
Fast Charging	Fast charge status	COMPLETED	None
		IN_PROGRESS	None. However, replace the battery module if this status continues for longer than eight hours.
No of Cycles	Number of fast charge cycles	(Numerical characters)	Replace the battery if the value exceeds 500.

NOTE: The defined battery life is two years or 500 charge cycles. If a battery is charged for more than 500, it is determined that its life has come to an end. Replace the battery.

The new battery is not charged. The battery is charged fully by continuous operation about six hours after the Server has started.

8.6 Error Messages in Remote Management

While the remote management is used, error messages may appear on the management PC at the occurrence of an error. This section lists the error messages and the actions taken against the errors.

[Fatal error]

No.	Error message	Action
1	Fatal error. JavaVM is terminated.	Login to the system again. If the same message appears again, set up the system again. If the same message reappears, replace the I/O Board.
2	A fatal software error occurred.	Login to the system again. If the same message appears again, set up the system again. If the same message reappears, replace the I/O Board.

[Error at login]

No.	Error message	Action
1	Authentication error	Check the user name and password. Then reenter them again.

[Access authority error]

No.	Error message	Action
1	The operation is not permitted. The authority level is not enough.	Perform the operation in the administrator level. Contact your administrator.

[Network errors]

No.	Error message	Action
1	HTTP communication failed.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
2	The IP address could not be solved.	Check the network environment. The Remote KVM Console is not available in the connection through a proxy.
3	The operation cannot reach the target host.	
4	A network error occurred.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
5	The applet is downloaded unsuccessfully.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board. If the SSL is made effective, only a single client can connect to the unit at a time. Retry the operation after terminating the operation of another client.

No.	Error message	Action
6	The RMCP+ session is closed.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
7	The RMCP+ session is established unsuccessfully.	
8	RMCP+ is sent unsuccessfully.	
9	The specified RMCP+ protocol is unavailable.	
10	The BMC resource is not enough to establish a new RMCP+ session.	Retry the operation after the connection from another client is terminated.
11	Timeout occurred in the RMCP+ connection.	After checking the network environment and the Server, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.

[BMC errors]

No.	Error message	Action
1	The IPMI request is aborted.	This may be caused by network congestion. Retry the operation. If the operation fails several times, replace the Management LAN Board. If the error still occurs, the BMC may be defected. Replace the I/O Board.
2	An illegal response is received from the BMC.	Check the Server. If no specific problems are found, the BMC may be defected. Replace the I/O Board.
3	The BMC does not support the features of IPMI 2.0.	
4	The IPMI command is executed unsuccessfully.	
5	The IPMI message is sent unsuccessfully.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
6	An illegal IPMI command is requested.	Check the Server. If no specific problems are found, the BMC may be defected. Replace the I/O Board.
7	The specified target is not found.	

[Errors no remote KVM console]

No.	Error message	Action
1	The remote KVM console is invalidated unsuccessfully.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
2	The remote KVM console is validated unsuccessfully.	
3	KVM packets are sent unsuccessfully.	
4	The KVM request is aborted.	This does not indicate a specific error. Click [OK] to close the message dialog box.
5	UDP packets are sent unsuccessfully.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
6	The remote KVM console is unavailable because it is made invalid.	Make the Remote KVM Console effective (permitted) following the User's guide.
7	The remote KVM console is already used by another client.	After the client now using the Remote KVM Console terminates, retry the operation.
8	The remote KVM console is terminated unsuccessfully.	Use the Remote KVM Console after three minutes or longer have passed.
9	The BMC configuration is set unsuccessfully.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
10	The UDP connection is closed.	

[Errors on system event log (SEL) display]

No.	Error message	Action
1	The BMC SEL is cleared unsuccessfully.	This may be caused by network congestion. Retry the operation. If the operation fails several times, replace the Management LAN Board. If the error still occurs, the BMC may be defected. Replace the I/O Board.
2	The SEL is acquired unsuccessfully.	

[Errors on sensor device report (SDR) display]

No.	Error message	Action
1	The SDR is acquired unsuccessfully.	This may be caused by network congestion. Retry the operation. If the operation fails several times, replace the Management LAN Board. If the error still occurs, the BMC may be defected. Replace the I/O Board.

[Errors on maintenance/replacement device information (FRU) display]

No.	Error message	Action
1	The DRU is acquired unsuccessfully.	This may be caused by network congestion. Retry the operation. If the operation fails several times, replace the Management LAN Board. If the error still occurs, the BMC may be defected. Replace the I/O Board.

[BMC configuration errors]

No.	Error message	Action
1	The setting failed.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.
2	The BMC configuration is acquired unsuccessfully.	
3	The BMC is now used by another software. Retry the operation after a while.	Retry the operation after a while.
4	The BMC configuration file is illegal.	The BMC configuration file may be broken. Check the file.
5	Required XML tags are not found.	
6	The file is saved unsuccessfully.	The BMC configuration file is saved incorrectly. After changing the storage destination, retry the operation.
7	The user name is too long.	The user name should be up to 32 characters.
8	The user name includes one or more illegal characters.	The user name can only accept alphanumeric characters, "-" (minus sign) and "_" (underscore).
9	The password is too long.	The password should be up to 16 characters.
10	The password does not match the registered one.	Reenter the password.
11	The HTTP port number is illegal.	Numeric characters are only available.
12	The SSL port number is illegal.	
13	The HTTP port number is the same as the SSI port number.	The port numbers cannot be the same with each other. Specify different port numbers.
14	The login trial period is illegal.	Numeric characters are only available.
15	The possible login failure count is illegal.	
16	The account lock period is illegal.	
17	The IP address is illegal.	Specify the IP address with numeric characters and periods.
18	The subnet mask is illegal.	
19	The default gateway is illegal.	
20	The IP address of the DNS server is illegal.	
21	The host name is illegal.	The host name can only accept alphanumeric characters, "-" (minus sign) and "_" (underscore). It should be up to 256 characters.

No.	Error message	Action
22	The domain name is illegal.	The domain name can only accept alphanumeric characters, "-" (minus sign) and "_" (underscore). It should be up to 256 characters.
23	The SMTP server address is too long.	The SMTP server address should be up to 256 characters.
24	The SMTP port number is illegal.	Numeric characters are only available.
25	The number of retries is illegal.	
26	The retry period is illegal.	
27	The value of "To" is too long.	
28	The value of "From" is too long.	The value should be up to 256 characters.
29	The value of "Subject" is too long.	
30	The message is too long.	A message should be up to 4062 characters.
31	The file is opened unsuccessfully.	The specified file may not exist. Check if the specification such as the file name is correct.
32	The file is closed unsuccessfully.	The specified file may be broken.
33	The directory cannot be opened.	The specified file may not exist. Check if the specification including the file name is correct.
34	Timeout occurred.	After checking the network environment, retry the operation. If the operation fails several times, replace the Management LAN Card. If the error still occurs, replace the I/O Board.

[Firmware update errors]

No.	Error message	Action
1	The BMC includes the following image updated incompletely.	Restart the Server to complete the update.
2	The update area status is acquired unsuccessfully.	This may be caused by network congestion. Retry the operation. If the operation fails several times, replace the Management LAN Board. If the error still occurs, the BMC may be defected. Replace the I/O Board.
3	The update data is too large.	The update file may be broken. Get the update file again.
4	The update is prepared unsuccessfully.	This may be caused by network congestion. Retry the operation. If the operation fails several times, replace the Management LAN Board. If the error still occurs, the BMC may be defected. Replace the I/O Board.
5	The file size is illegal.	The update file may be broken. Get the update file again.
6	The revision information cannot be found.	
7	The rollback image is created unsuccessfully.	Retry the operation. If the operation fails several times, replace the I/O Board.

No.	Error message	Action
8	The firmware is erased unsuccessfully.	

No.	Error message	Action
9	The format version is not supported yet.	The update file may be broken. Get the update file again.
10	The update image file is read unsuccessfully.	
11	The firmware is updated unsuccessfully.	
12	The system cannot enter into the update mode.	Retry the operation. If the operation fails several times, replace the I/O Board.
13	The update target cannot be detected.	The update file may be broken. Get the update file again.
14	The address is illegal.	
15	The firmware is written unsuccessfully.	Retry the operation. If the operation fails several times, replace the I/O Board.
16	An unsupported token is detected.	The update file may be broken. Get the update file again.
17	The segment information is illegal.	
18	The data length is illegal.	
19	The file is opened unsuccessfully.	The specified file may not exist. Check if the specification including the file name is correct.
20	The file is closed unsuccessfully.	The update file may be broken. Get the update file again.
21	The file checksum is illegal.	
22	The file is interpreted unsuccessfully.	
23	The file is interpreted unsuccessfully.	
24	The file is read unsuccessfully.	
25	The file cannot be found.	
26	The verification failed.	Retry the operation. If the operation fails several times, replace the I/O Board.
27	The update is suspended due to occurrence of an interrupt.	Check the client. Another software used by the customer may issue an interrupt.
28	The online update is now used.	After the online update done by another tool terminates, retry the operation if necessary.
29	The current revision is acquired unsuccessfully.	This may be caused by network congestion. Retry the operation. If the operation fails several times, replace the Management LAN Board. If the error still occurs, the BMC may be defected. Replace the I/O Board.
30	The line is acquired unsuccessfully.	The update file may be broken. Get the update file again.
31	The line length is illegal.	
32	An unexpected EOF is detected.	
33	An unexpected token is detected.	
34	The PIA is not fit to the Server.	The platform information (PIA) is not provided for the Server. Get the update file again.

9. Other Notes (Restrictions)

- The USB connectors on the front of the Server are applicable only to USB1.1 but not to USB2.0.

Connect USB2.0 corresponding devices to the USB connectors on the rear of the Server.

Connecting a USB2.0 corresponding device to a USB connector on the front of the Server may cause an error to occur.

- The seamless setup of EXPRESSBUILDER is available only for the onboard RAID controller.

The seamless setup cannot be used to install OS in a HDD connected to PCI boards (including Disk Array Controller and SCSI Controller).

Always install OS by using the manual setup.

- If the MegaRAID Configuration Utility is started from POST, message "Press <Ctrl> <M> or <Enter> to Run Config Utility" appears on the screen. However, always press <Enter>.

Pressing <Ctrl><M> sometimes causes the Ctrl key not to be released, thus disabling normal key entries. If this should occur, press the Ctrl key again.

- Backup devices cannot be connected to the Onboard RAID controller.

10. Saving/Restoring Product Information when Replacing the I/O Board

10.1 Overview

The product information (e.g., model name and N code) of the server and chassis information (e.g., chassis type and designation number) is recorded in the non-volatile memory of the I/O board. Product information and chassis information suitable for the server is recorded at shipment.

If the current I/O board needs to be replaced in the field, the memory of a replacement I/O board contains provisional product information and chassis information which is usually not suitable for the target server. When replacing the I/O board, restore the product information and chassis information into the new I/O board according to the procedure below. In general, restore the information by performing the procedure shown in "10.2 Restoration Procedure 1 (Backup and Restoration)."

When replacing the I/O board without making a backup copy of the information, restore the information by performing the procedure shown in "10.3 Restoration procedure 2 (with no backup copy)."

Without a backup data, the RMC data (remote management data) must be restored in manual mode by the remote management feature of the OS.

10.2 Restoration Procedure 1 (Backup and Restoration)

10.2.1 Overview

Before replacing the I/O board, start the Off-line Maintenance Utility, and make a backup copy of the product information and chassis information onto a floppy disk. After replacing the I/O board, start the Off-line Maintenance Utility again and restore the product information and chassis information from the floppy disk into the memory of the new I/O board.

When replacing the I/O board without making a backup copy of the information, restore the information by performing the procedure shown in "10.3 Restoration procedure 2 (with no backup copy)."

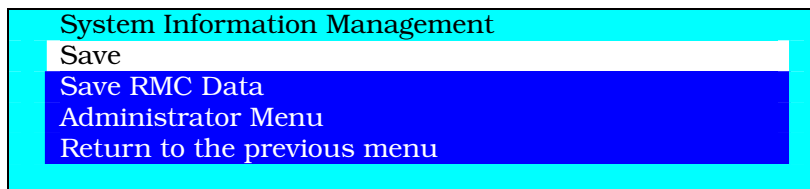
10.2.2 Requirements

- EXPRESSBUILDER CD-ROM
- 1 floppy disk (A free space of about 10KB is required. An unformatted disk is acceptable.)

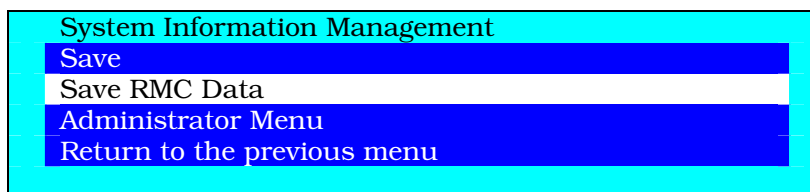
10.2.3 Details

<Before replacing the I/O board>

11. Start EXPRESSBUILDER, and select [Tool] → [Off-line Maintenance Utility].
12. Select [System Information Management]. The window shown below appears.

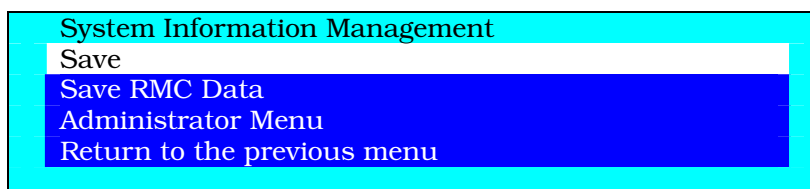


13. Select [Save]. After that, make a backup copy onto the floppy disk according to the instructions in the window.
14. When the [Save] operation has successfully completed, select [Save RMC Data] to make a backup copy onto the floppy disk. You can use the same floppy disk used in step 3.

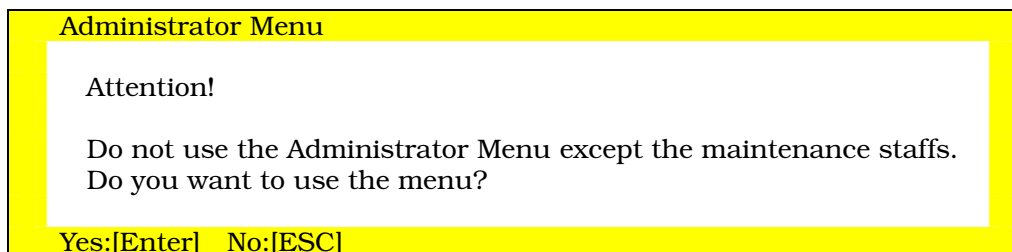


<After replacing the I/O board>

1. Start EXPRESSBUILDER, and select [Tool] → [Off-line Maintenance Utility].
2. Select [System Information Management]. The window shown below appears.



3. Select [Administrator Menu]. The messages shown below appear.



4. Press **Enter**. The messages shown below appear.

```

Administrator Menu
A password is necessary to use the Administrator Menu.

Input the Maintenance Staff's password.

Password->

Press the ESC key to exit.

```

5. The password for administrators is "CENVRAM." The password can be entered in either uppercase or lowercase.

Enter the password. The window shown below appears.

```

Administrator Menu
Restore (after exchange of the Mother Board)
Restore RMC Data
Customize Product/Chassis Information
Return to the previous menu

```

6. Select [Restore (after exchange the Mother Board)]. The window shown below appears.

Restore (after exchange of the Mother Board)					
Data Name	Device	Addr	Size	File Name	Restore
Product Information	SROM	00000098	0068	033Eprod.bin	○
Chassis Information	SROM	00000028	0030	033Echas.bin	○
Internal Use Area	SROM	00000008	0020	033Einte.bin	○
Ambient Temp Sensor Parameter	BMC	00000000	0010	033Ebmc1.bin	○
BMC Configuration Parameter	BMC	00000000	1000	033Ebmc2.bin	○
GUID	BMC	00000000	0010	033Eguid.bin	○
BIOS Parameter #1	RTC-S	0000000E	0072	033Eb1o1.bin	○
BIOS Parameter #2	RTC-E	00000000	0080	033Eb1o2.bin	○
BIOS Parameter #3	BMC NVRAM	00000030	0050	033Eb1o3.bin	○
Setup Information	BMC NVRAM	00000000	0030	033Eexpb.bin	○
Start to restore					

7. Press **Enter** while [Start to restore (Data with ○ shown in Column Restore is restored.)] is reversed. The message shown below appears.

```

Restore (after exchange of the Mother Board)

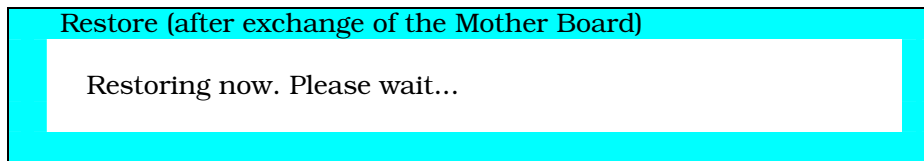
Restores the saved data to NVRAM/ROM.

Yes:[Enter] No:[ESC]

```

8. Insert the floppy disk containing the backup copy into the floppy disk drive, and press **Enter**.

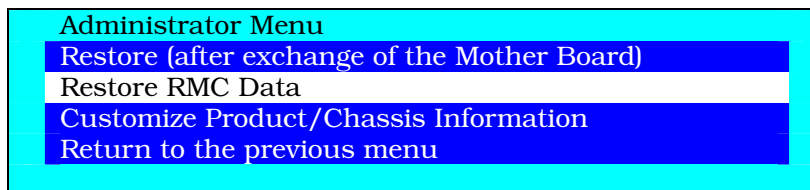
Restoration starts. The message shown below is displayed during restoration.



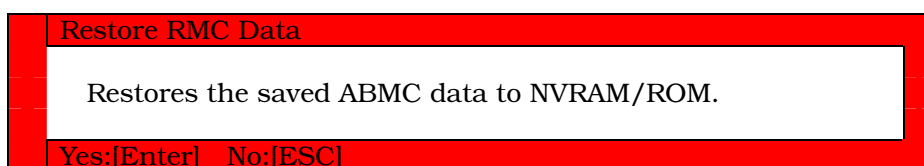
9. When the window shown below appears, the restoration is complete. Press **ESC**.

Restore (after exchange of the Mother Board) : Result = Normal End						
Data Name	Device	Addr	Size	File Name	Restore Result	
Product Information	SROM	00000098	0068	033Eprod.bin	○	○
Chassis Information	SROM	00000028	0030	033Echas.bin	○	○
Internal Use Area	SROM	00000008	0020	033Einte.bin	○	○
Ambient Temp Sensor Parameter	BMC	00000000	0010	x033Ebmc1.bin	○	○
BMC Configuration Parameter	BMC	00000000	1000	x033Ebmc2.bin	○	○
GUID	BMC	00000000	0010	x033Eguid.bin	○	○
BIOS Parameter #1	RTC-S	0000000E	0072	033Eb1o1.bin	○	○
BIOS Parameter #2	RTC-E	00000000	0080	033Eb1o2.bin	○	○
BIOS Parameter #3	BMC NVRAM	00000030	0050	x033Eb1o3.bin	○	○
Setup Information	BMC NVRAM	00000020	0010	x033Eexpb.bin	○	○
Exit:[ESC]						

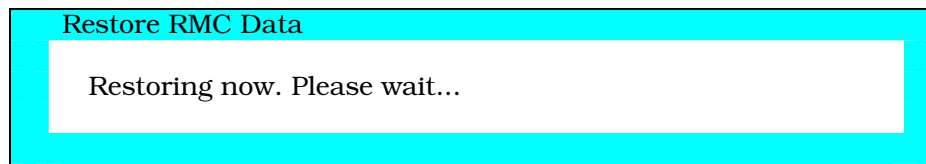
10. The system will reboot. Start the Off-line Maintenance Utility and display the Administrator Menu.
11. Select [Restore RMC Data].



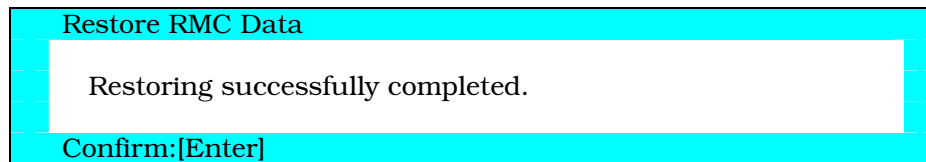
12. Press **Enter** when the window shown below appears.



13. The restoration starts. The message shown below is displayed during restoration.



14. Once the restoration is complete, the window shown below appears.



15. Press **Enter** to exit. The system will restart.

10.3 Restoration Procedure 2 (With No Backup Copy)

10.3.1 Overview

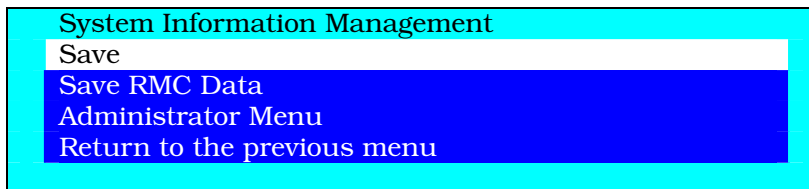
After replacing the I/O board, start the Off-line Maintenance Utility, and enter the product information and chassis information in manual mode to update values. The RMC data (remote management data) must be restored in manual mode by the remote management feature of the OS.

10.3.2 Requirement

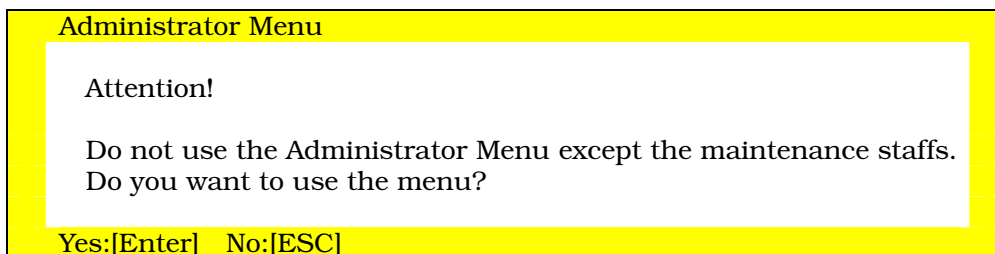
- EXPRESSBUILDER CD-ROM

10.3.3 Details

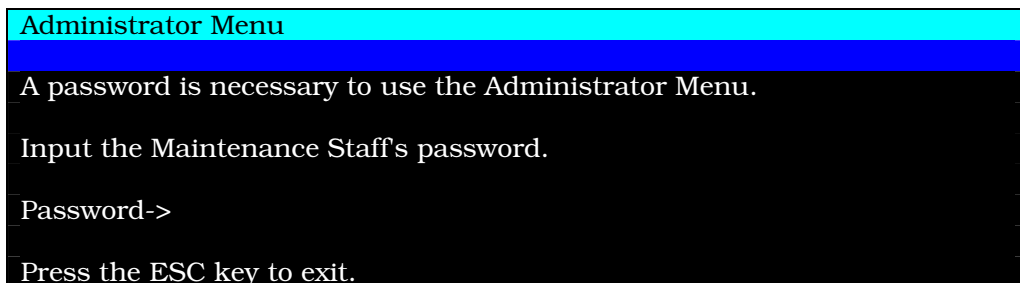
1. Start EXPRESSBUILDER, and select [Tool] → [Off-line Maintenance Utility].
2. Select [System Information Management]. The window shown below appears.



3. Select [Administrator Menu]. The messages shown below appear.



4. Press **Enter**. The messages shown below appear.



- The password for administrators is "CENVRAM." The password can be entered in either uppercase or lowercase.

Administrator Menu
Restore (after exchange of the Mother Board)
Restore RMC Data
Customize Product/Chassis Information
Return to the previous menu

[illegible]

- Manufacturer Name, Model Name, N Code, FR number, and Server Serial Number

8. Position the cursor to [Chassis Information] to reverse, and press **Enter**. The window shown below appears.

9. Check the following items for correct values:

- Chassis Type, Chassis Part Number, Chassis Serial Number, and Chassis Characteristics

If finding any incorrect value, correct it from the keyboard. Position the cursor to the target item to reverse, and press **Enter**. You can enter (correct) the value.

The default values for the server are shown below.

	140Rd-4 (Rack)	140He (Tower)
ChassisType	17 (17h: Rack Mount Chassis)	07 (07h: Tower)
ChassisPartNumber	243-411567-001	243-411575-001
ChassisSerialNumber	01	05
ChassisCharacteristics	06	06

10. Press **ESC** to return to the previous menu. Position the cursor to [Start to update] to reverse, and press **Enter**. The window shown below appears.

Customize Product/Chassis Information

Updates the Product/Chassis Information.
Yes:[Enter] No:[ESC]

11. Press **Enter**. The system starts writing to the non-volatile memory of the I/O board.

The message shown below is displayed during write operation.

Customize Product/Chassis Information

Updating now.

12. The write operation is completed when the message shown below appears. Press **ESC**.

Customize Product/Chassis Information

Normal End.
OK:[Enter]

NOTE: Without a backup data, the RMC data (remote management data) must be restored in manual mode by the remote management feature of the OS.

11. Maintenance Parts

11.1 Specification Number of Maintenance Parts

Basic Processing Unit

Models:	CPU model	CPU Frequency	CPU Cache	Maintenance part without CPU
140Rd-4	Cranford	3,16GHz	1M	243-411447-4340
		3,66GHz	1M	
	Potomac	2,83GHz	4M	243-411447-4650
		3,0GHz	8M	
		3,33GHz	8M	
	Paxville	2,66GHz	2*1M	8004170000+8004350000
		3,0GHz	2*2M	

Models:	CPU model	CPU Frequency	CPU Cache	Maintenance part without CPU
140He	Cranford	3,16GHz	1M	243-411447-4360
		3,66GHz	1M	
	Potomac	2,83GHz	4M	243-411447-4840
		3,0GHz	8M	
		3,33GHz	8M	
	Paxville	2,66GHz	2*1M	8004180000+8004350000
		3,0GHz	2*2M	

Additional HDD Cage with 3.5-inch bay, 140Rd-4 only

- Maintenance Parts Specification: 243-411450-1070

Additional HDD Cage: 8 HDD, 140He only

- Maintenance Parts Specification: 243-411450-1080

Additional CPU

CPU model	CPU Frequency	CPU Cache	P/N CPU	P/N VRM	P/N HeatSink
Cranford	3,16GHz	1M	6967600000	802-188409-002A	808-815085-757A
	3,66GHz	1M	6967610000		
Potomac	2,83GHz	4M	6975260000		
	3,0GHz	8M	6975270000		
	3,33GHz	8M	6975280000		
Paxville	2,66GHz	2*1M	8006030000		
	3,0GHz	2*2M	8006040000		

Additional Memory Backboard

Product	P/N AVL
Memory Board	243-411449-2200

Additional Memory Board

Memory size	P/N AVL
512 Mb	6967800000
	6967960000
	6968090000
1024 Mb	6967820000
	6967970000
	6968100000
2048 Mb	6968120000

USB Floppy Disk Drive, 140Rd-4 only

Product	P/N AVL
USB FDD	6953520000
	6849180000

11.2 Maintenance Parts List

Server

Description	140He			140Rd-4			Remarks
	Cranford	Potomac	Paxville	Cranford	Potomac	Paxville	
140HE RD-4 MEMORY BOARD DG7HMG	☑	☑	☑	☑	☑	☑	Memory Board
140HE RD-4 FDD/CDROM RBD 7HMJ	☑	☑	☑	☑	☑	☑	-
140HE RD-4 SCSI BRIDGE DG7HMK	☑	☑	☑	☑	☑	☑	-
140HE RD-4 MAIN BP DG7HML	☑	☑	☑	☑	☑	☑	-
140HE RD-4 POWER BOARD DG7HMM	☑	☑	☑	☑	☑	☑	-
140HE RD-4 SWITCH BOARD DG7HMN	☑	☑	☑	☑	☑	☑	-
140HE RD-4 IO FRT BRD DG7HMP	☑	☑	☑	☑	☑	☑	-
140RD-4 PCI MAIN BOARD DG7HRH	☑	☑	☑	☑	☑	☑	Main Board
140RD-4 CPU BOARD DG7HRJ	☑			☑			Cranford CPU Board
140HE RD-4 A-BMC RBD DG7HTR	☑	☑	☑	☑	☑	☑	A-BMC Riser Board
140RD-4 CPU BOARD DG7HUN		☑			☑		Potomac CPU Board
140HE FDD FLAT CABLE	☑	☑	☑				Laptop syle ribbon cable
140HE SCSI BACKPLANE DG7HRK	☑	☑	☑				140He SCSI Backplane
140RD-4 SCSI BACKPLANE DG7HRK				☑	☑	☑	140Rd-4 SCSI Backplane
140Rd-4 barebone W/O CPU board			☑			☑	140Rd-4 Barebone used for Paxville
PROCESSOR BOARD PAXVILLE667			☑			☑	Paxville Cpu Board
140HE FM-FDD 3.5" SLIM MITSUMI	☑	☑	☑				140He Floppy drive
140HE RD-4 RAID BATTERY	☑	☑	☑	☑	☑	☑	BBU for Onboard RAID Ctrler
140HE RD-4 SLIM CDR SR244W1	☑	☑	☑	☑	☑	☑	Optical drive
140HE FANS	☑	☑	☑	☑	☑	☑	Fan Block
140RD-4 BAREBONE CRANFORD				☑			Without CPU
140HE BAREBONE CRANFORD	☑						Without CPU
140RD-4 BAREBONE POTOMAC					☑		Without CPU

140HE BAREBONE POTOMAC		<input checked="" type="checkbox"/>						Without CPU
140HE RD-4 GIBSON BASE CBL SET	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Gibson cable set
140HE GIBSON SHIGA CABLE SET	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				140He specific cables
140HE RD-4 256M FOR RAID CTRLR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cache for Onboard Raid Ctrler
140HE RD-4 INTRUSION SWITCH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Intrusion Switch Assy
140HE RD-4 SCSI U320 CBL 10CM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SCSI Jumper cable
140HE RD-4 A-BMC CABLE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A-BMC Cable
140HE SCSI 4CONN(U320) L1=1400	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				SCSI Cable
140HE POWER CBL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Power Cable
140HE RD-4 DPS-700EB D	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Power Supply

N8541-07 Additional HDD cage with 3.5-inch device bay (140Rd-4 only)

Level	Item Number	Item Description
0	243-411450-1070	140RD-4 CAGE W/ DEVICE BAY
1	243-651964-001	SCSI BP FOR 5'25 DEV (G7HRL)
1	8000270000	140HE OPTIONAL SCSI FAN
1	804-062902-115	140HE ICMB SCSI CABLE
1	804-063107-565	140HE ADD ON SCSI CABLE
1	804-063223-001	140HE SCSI TAPE CABLE
1	804-063224-027	140HE POWER TAPE CABLE
1	804-063225-001	140HE ADD ON SCSI POWER CABLE
1	804-063226-000	140HE OPTIONAL SCSI FAN CBL

N8541-08 Additional HDD cage (140He only)

Level	Item Number	Item Description
0	243-411450-1080	140HE ADD. SCSI HDD CAGE
1	243-652104-001	140HE OPTIONAL SCSI BP
1	8000270000	140HE OPTIONAL SCSI FAN
1	804-062902-115	140HE ICMB SCSI CABLE
1	804-063107-565	140HE ADD ON SCSI CABLE
1	804-063225-001	140HE ADD ON SCSI POWER CABLE
1	804-063226-000	140HE OPTIONAL SCSI FAN CBL

Additional CPU

CPU model	CPU Frequency	CPU Cache	P/N CPU	P/N VRM	P/N HeatSink
Cranford	3,16GHz	1M	6967600000	802-188409-002A	808-815085-757A
	3,66GHz	1M	6967610000		
Potomac	2,83GHz	4M	6975260000		
	3,0GHz	8M	6975270000		
	3,33GHz	8M	6975280000		
Paxville	2,66GHz	2*1M	8006030000		
	3,0GHz	2*2M	8006040000		

Additional memory backboard

Product	P/N AVL
Memory Board	243-411449-2200

Additional DIMM

Memory size	P/N AVL
512 Mb	6967800000

	6967960000
	6968090000
1024 Mb	6967820000
	6967970000
	6968100000
2048 Mb	6968120000

USB FDD: 140Rd-4 only

Product	P/N AVL
USB FDD	6953520000
	6849180000

12. Appendix

12.1 Available PCI Boards

The table below shows the optional devices and their available slots.

Product name	PCI		PCI Express			PCI-X			
	#1	#2	#3	#4	#5	#6	#7	#8	#9
	Bus A		Bus B	Bus C	Bus D	Bus E		Bus F	
	32-bit/33MHz		x4	x8		64-bit/100MHz			
Slot size	Full-height								
PCI board type	5V		x8 socket			3.3V			
Available board size	Long/short								
Hot-plug	Non-hot-plug			Hot-plug					
SCSI controller (32bit/33MHz PCI) ^{*5}	√	√	—	—	—	√	√	√	√
SCSI controller (64bit/133MHz PCI-X) ^{*5}	√	√	—	—	—	√	√	√	√
SCSI controller (64bit/133MHz PCI-X) ^{*5}	√	√	—	—	—	√	√	√	√
Fibre Channel controller (64bit/133MHz PCI-X) ^{*2}	√	√	—	—	—	√	√	√	√
Disk array controller (64bit/66MHz PCI) ^{*4}	√	√	—	—	—	√	√	√	√
Disk array controller (SAS) (PCI EXPRESS(x8)) ^{*3}	—	—	√	√	√	—	—	—	—
Fibre Channel controller (2Gbps/Optical) (64bit/133MHz PCI-X) ^{*4}	—	—	—	—	—	√	√	√	√
Fibre Channel controller (4Gbps/Optical) (PCI EXPRESS(x4)) ^{*3}	—	—	√	√	√	—	—	—	—
1000BASE-T Adapter (2ch) (PCI EXPRESS(x4)) ^{*6}	—	—	√	√	√	—	—	—	—
1000BASE-T Adapter (PCI EXPRESS(x1)) ^{*7}	—	—	√	√	√	—	—	—	—
1000BASE-T Adapter (2ch)(64bit/133MHz PCI-X) ₁	—	—	—	—	—	√	√	√	√
1000BASE-T Adapter (64bit/133MHz PCI-X) ^{*1}	—	—	—	—	—	√	√	√	√
1000BASE-TX Adapter (32bit/33MHz PCI) ^{*4}	√	√	—	—	—	√	√	√	√
1000BASE-SX Adapter (64bit/133MHz PCI-X) ^{*1}	—	—	—	—	—	√	√	√	√
100BASE-TX Adapter (32bit/33MHz PCI) ^{*2}	√	√	—	—	—	√	√	√	√

√: Can be installed. –: Cannot be installed.

*1 Only one card can be installed per a PCI-X bus.

*2 Up to two cards can be installed.

*3 Up to three cards can be installed.

*4 Up to four cards can be installed.

*5 Up to six cards can be installed.

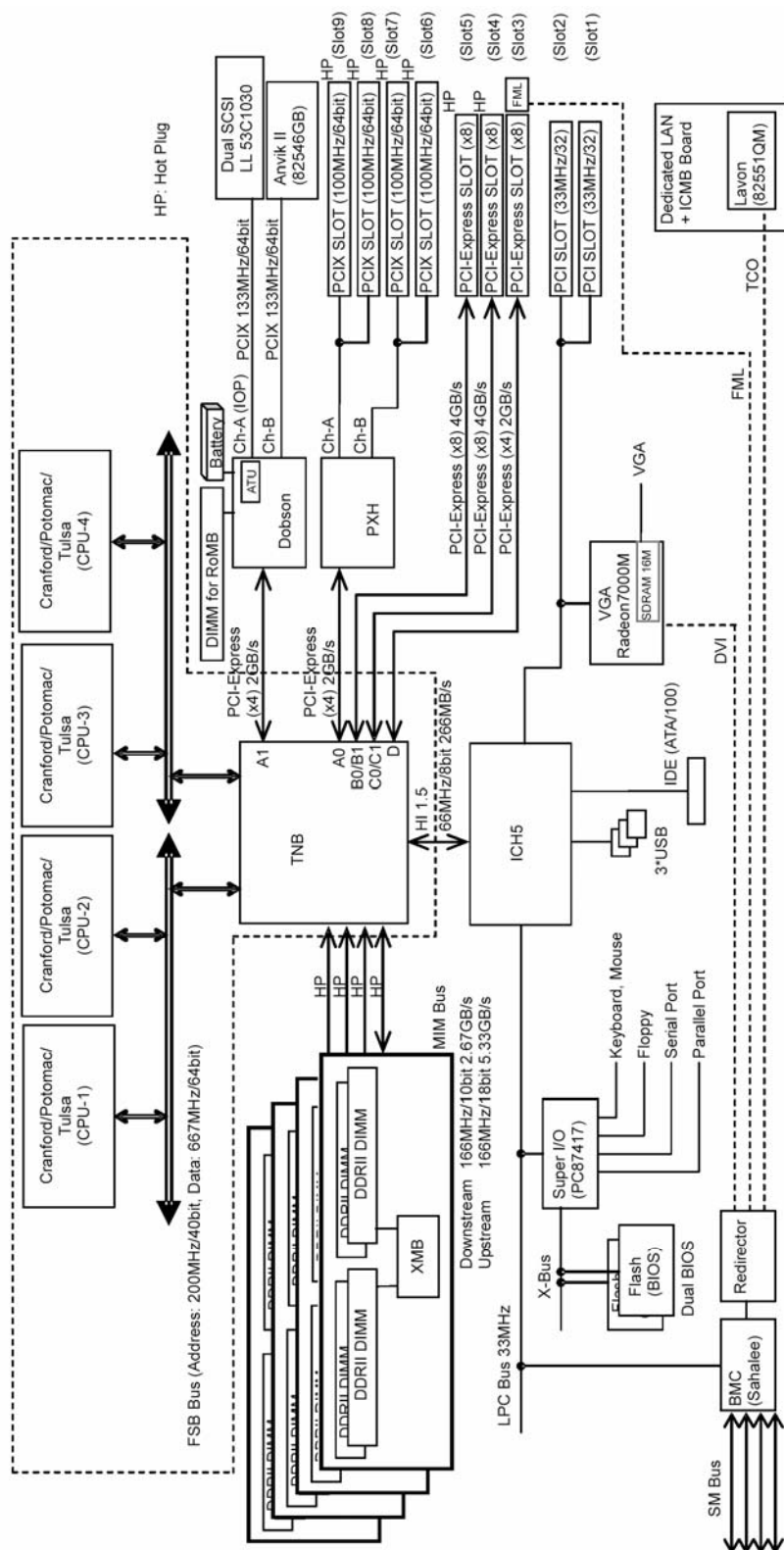
*6 Up to three cards can be installed. AFT/ALB teaming is available with N8104-118 only.

*7 Up to three cards can be installed. AFT/ALB teaming is available with N8104-114 only.

12.2 Available Options

Refer to the latest Product Information, Technical Guide, and System Configuration Guide for options available for the server.

12.3 Block Diagram



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